PLAN Series™

File Transfer Server

Installation and Operation Manual

NESTAR

NESTAR SYSTEMS, INCORPORATED

PLAN SERIES™

FILE TRANSFER SERVER

INSTALLATION AND OPERATION MANUAL

DISCLAIMER OF WARRANTIES

How to Use This Manual

This manual describes the installation, configuration, and operation of the File Transfer Server (FTS) software for PLAN File Server systems. FTS packages are available for standalone and networked microcomputers.

The material in this manual applies to Version 2.4 of the File Transfer Server Software.

The network FTS can run in any station on the network and can serve one or more file server stations on the network. Data in the form of file server files (such as virtual disk volumes, mail messages, and spooled print server requests), as well as individual .files within certain types of virtual volumes, can be transferred from file server to file server on the same network or to a different network. Note that the IBM PC can not transfer binary (T=B) virtual volumes.

The standalone FTS can run on the Apple //, Apple ///, and IBM PC, transferring Pascal, SOS, and DOS files to another standalone Apple //, Apple ///, or IBM PC, or to a network FTS.

This manual is organized as follows:

Chapter 1 introduces the different ways the FTS can be used, explains the hardware requirements for each of these uses, and explains modem compatibility requirements.

Chapter 2 contains installation instructions for the following configurations of FTS: FTS on standalone Apple //, FTS on networked Apple //, FTS on standalone Apple ///, FTS on networked Apple ///, FTS on standalone IBM PC, and FTS on networked IBM PC.

Chapter 3 provides an overview of FTS startup and operation as well as an introduction to the syntax and purpose of all of the commands that FTS understands.

Chapter 4 provides a detailed description of each of the FTS

commands and syntax requirements to be used as a reference. It includes extended examples of FTS command files appropriate for standalone and network versions.

Appendix A is a quick reference guide to FTS commands and syntax.

Appendix B provides details about the Clock/Calendar Card, which is part of the stand-alone FTS package that runs on the Apple //.

Appendices C through I provide details about modems supported by FTS.

Prerequisite manuals are

> *PLAN Series Network Command Reference Manual*
>
> *PLAN Series File Server Installation and Operation Manual*
>
> *PLAN Series IBM Personal Computer Reference Manuals* and *PLAN Series Apple User's Guides* for specific network environments.

A bibliography appears at the end of this manual.

If your installation also has the Messenger™ electronic mail package, we recommend that you read the Messenger manuals.

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Chapter 1

About FTS

1.1 Introduction

In this chapter we explain the fundamental purposes of the File Transfer Server and provide lists of required hardware for different configurations.

If your installation will be using FTS for remote transfers, you will need to select a modem that is compatible with the modems of the remote FTS stations. We list the supported modems and discuss compatibility issues.

Finally, we explain the types of data that can be transferred using FTS.

1.2 Uses of FTS

FTS can be used in several basic ways:

(1) Standalone microcomputers with modems can run the FTS software, enabling them to send and receive data to and from a PLAN File Server network. Each station involved in the transfer must be running FTS at the time of transfer, and both stations must have compatible modems.

FILE TRANSFER SERVER   **DISK**   **DISK**   **FILE TRANSFER SERVER**

MODEM   **MODEM**
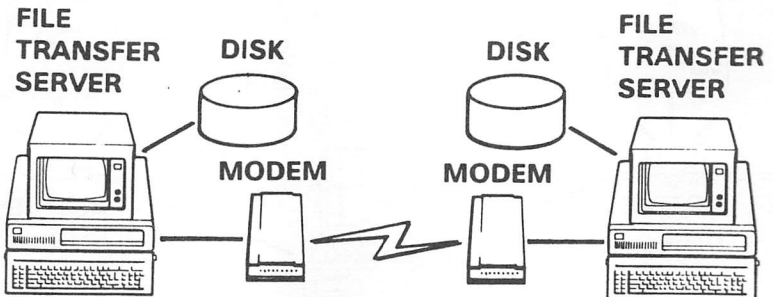
Standalone to Standalone

(2) Standalone microcomputers with compatible modems can transfer data between their local drives, provided they are each running FTS software.

(3) Network workstations running FTS can transfer data on one file server or between multiple file servers on the same network.

DISK   **DISK**

ACTIVE HUB

NETWORK FILE SERVER

NETWORK FILE SERVER

FILE TRANSFER SERVER
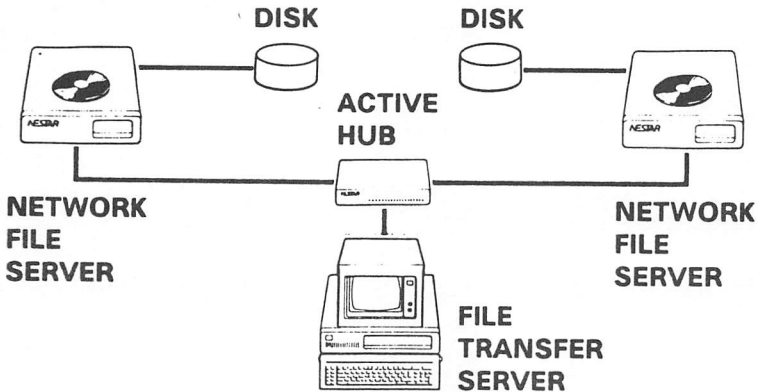
Local transfer to one File Server or between multiple File Servers on one network

(4) Network Apple workstations running FTS can transfer data between connected networks provided they have Network Interface Cards for each network they are serving.

NETWORK FILE SERVER

NETWORK FILE SERVER

DISK   **DISK**

ACTIVE HUB

ACTIVE HUB

FILE TRANSFER SERVER
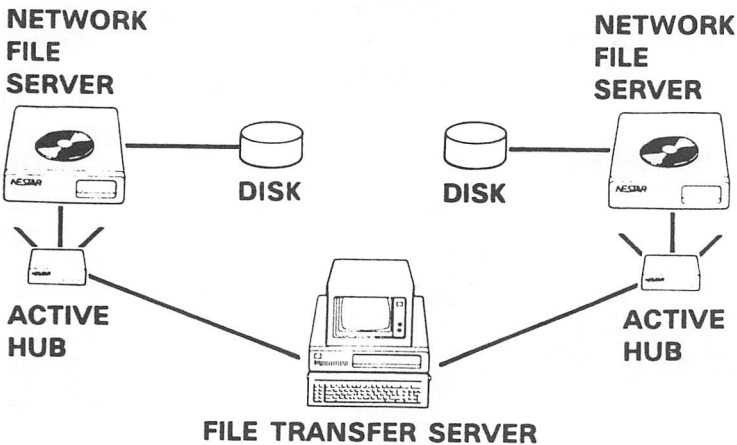
Local transfer between connected networks

(5) Network workstations can transfer data to remote FTS networks. Each network involved in the transfer must have a workstation that is running FTS at the time of the transfer. And, both FTS stations must have compatible modems.

Network to Network remote transfer
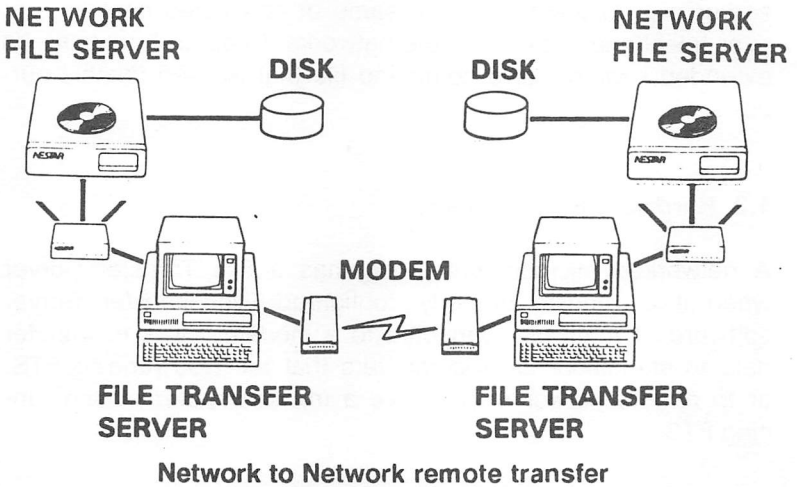
(6) Network workstations can transfer data to remote standalone FTS stations. Each station involved in the transfer must be running FTS at the time of transfer, and both stations must have compatible modems.

**Network to Standalone and
Standalone to Network**
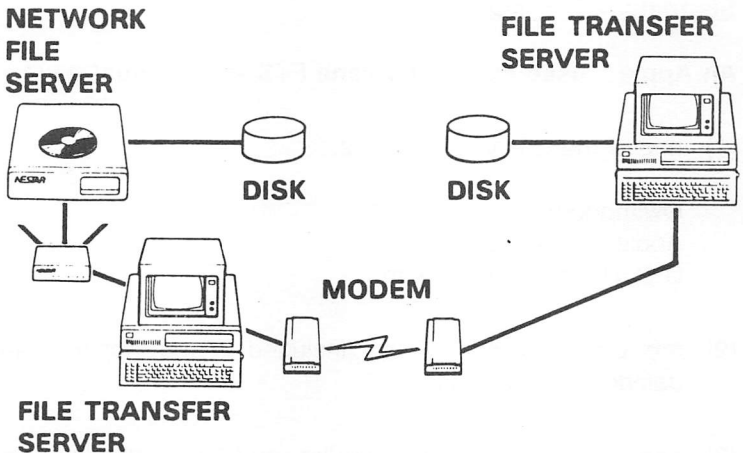
Networked microcomputers running FTS can be used in conjunction with applications such as the Messenger^{TM}'s electronic mail and Print Server subsystem packages. Virtual volumes created by these applications can be transferred from one file server disk to another on the same or connected networks, or over telephone lines to remote networks. Chapter 4 contains an extended example of a command file that is used for this purpose.

1.3 Hardware Requirements

A networked microcomputer becomes a File Transfer Server when it is running properly configured File Transfer Server software. It must be connected to a modem if it is to transfer data to standalone microcomputers that are also running FTS, or to remote networks that have a microcomputer station running FTS.

If it is to transfer data using only the network, then no modem is needed. In addition, the Apple FTS can transfer data between networks. To transfer data between networks, one Network Interface Card is required for each network connected.

Standalone FTS stations

An Apple // used as a standalone FTS station must have

(1) one of the following modems:

   Owlmodem
   Apple-CAT II Modem
   D.C. Hayes Micromodem II

(2) the Clock/Calendar Card (included in the Apple // standalone FTS package)

(3) one 5.25" floppy disk controller, and two 5.25" floppy disk drives

An Apple /// used as standalone FTS station must have

(1) one of the following modems:

D.C. Hayes Smartmodem
D.C. Hayes Smartmodem 1200

(2) second 5.25" floppy disk drive or a Profile hard disk in addition to the built-in floppy disk drive.

An IBM PC used as a standalone FTS station must have

(1) one of the following modems:

D.C. Hayes Smartmodem
D.C. Hayes Smartmodem 1200

(2) an asynchronous communication card

(3) 192 KB memory

(An IBM PC XT used as a standalone FTS station needs only the modem.)

<u>Network FTS stations</u>

An Apple // used as a network FTS station must have

(1) one of the following modems (if it is to transfer files to separate networks or standalone FTS stations):

Owlmodem
Apple-CAT II Modem
D.C. Hayes Micromodem II

(2) a Network Interface Card for every network segment it serves. It can serve up to six network segments (seven if no modem card is installed).

An Apple /// used as a network FTS station must have

(1) one of the following modems:

D.C. Hayes Smartmodem
D.C. Hayes Smartmodem 1200

(2) a Network Interface Card for every network segment it serves. It can serve up to three network segments.

An IBM PC used as a network FTS station must have

(1) one of the following modems:

D.C. Hayes Smartmodem
D.C. Hayes Smartmodem 1200

(2) a Network Interface Card (IBM PC serves only one network)

(3) an asynchronous communication card

(4) 192 KB memory

(An IBM PC XT used as a network station needs only the modem and interface card.)

Workstations on the network can be used as FTS stations when FTS software is executed on them. They can be dedicated as full-time File Transfer Server stations, or they can used as a network workstation devoted to FTS duties part time and to

other duties for the remainder of the day.

1.4 Modem Compatibility

Two FTS stations cannot transfer data to each other via tele-
phone lines unless their modems are compatible. The following
chart shows which modems are compatible. (The numbers 1
and 2 refer to the notes below the chart.)

Compatibility Chart
(Network or Standalone)

FROM

	Micro II	CAT II	Owl	Smart Modem	Smart Modem 1200
TO					
Micro II	YES	1	NO	YES	1
CAT II	2	YES	YES	2	1&2
Owl	NO	YES	YES	NO	NO
Smart Modem	YES	1	NO	YES	1
Smart Modem 1200	2	1&2	NO	2	YES

(1) The SITE command in the command file of the originator
     must contain a "USES 300" clause that FTS will pass to its

modem driver, causing the Bell 103 mode to be selected when calling that site (see Chapter 4).

(2) The MYSITE command in the command file of the answering site must contain a "USES 300" clause that FTS will send to its modem driver, causing the Bell 103 mode to be selected when answering incoming calls (see Chapter 4).

1.5 The Data Transferred

Each of the following volumes, directories, or files can be transferred as a unit by the FTS:

(1) The following file server virtual volumes:

Apple // Pascal (T=P)   Apple /// SOS (T=3)
Apple // DOS (T=D)   IBM PC DOS (T=I)
Apple // CP/M (T=C)   IBM PC p-System Pascal
                               (T=U)

The entire contents of the virtual volume, including the directory, allocated space, and unused space, is copied. The destination volume is created and formatted appropriately by FTS at the time of the transfer.

(2) File server virtual volumes that are binary memory images (T=B). The destination file will be constructed with the same characteristics (memory load address, memory size, and file size) as the original.

Note: The IBM PC cannot transfer T=B volumes.

(3) File server virtual volumes that are T=T (text files): for example, files spooled by the Print Server Subsystem and Messenger.

(4) For network to network only, file server directories that contain any of the above volume types. Although the directory

itself is not copied, any nondirectory volumes contained within it are transferred and created under a single directory at the destination. Thus, a collection of volumes may be transferred without specifying (or knowing) what the individual volumes are The file server directories are searched in nested fashion, so the volumes within entire subtrees may be transferred.

(5) For stand-alone Apple FTS stations only, real volumes that are Apple // Pascal, DOS, CP/M, or Apple /// SOS formatted. Real volumes are assumed to be 280 blocks (size of a disk) except for Apple // Pascal, which can be smaller, depending upon how many blocks were zeroed.

(6) For stand-alone IBM PC FTS stations only, real volumes that are PC DOS. Volumes received by IBM PC FTS stations must be of a size (160, 180, 320, 360 KB) supported by the hardware on that station.

NOTE: Network versions of FTS cannot send or receive data from locally attached floppy drives.

A real volume can be transferred to a virtual volume without any restriction. On the other hand, virtual volumes must be of valid size and type (i.e., SIZE = 280.B for T=D, T=C, T=3; SIZE < = 280.B for T=P; SIZE = 160, 180, 320 or 360, same as real disk, for T=I and T=U) to become real volumes at the destination.

(7) For Apple FTS stations, Apple // Pascal files within Pascal volumes (virtual or real) and Apple /// SOS files within SOS volumes (virtual or real). The file may be any legal Pascal or SOS type (TEXT, CODE, ASCII, etc). Pascal files are managed by both Pascal and SOS, while SOS files are only recognized by SOS.

(8) For IBM PC FTS stations only, IBM PC DOS files within PC DOS volumes.

Remote transfers cannot take place unless the sending FTS provides an ID name that matches that of the receiving FTS. These ID names are included in appropriate command lines used by the FTS stations. The matching ID requirement insures that a remote station cannot gain unwarranted write access to the file server disk of the receiving FTS station. Chapter 4 provides complete instructions for use of matching ID's.

Chapter 2

Installation

This chapter discusses in detail the requirements and procedures for installing and testing the FTS. It contains the following sections:

Modem installation is discussed in detail in the appendices. See the appendix specific to your modem.

2.1 Network Apple // FTS Installation

The File Transfer Server for networked Apple // is shipped as virtual volumes. If you ordered FTS at the time of your initial PLAN File Server network order, these volumes will already exist on your hard disk. If you ordered FTS at a later time, you will receive a tape containing the virtual volumes; instructions for transferring the contents of the tape to the disk will accompany the tape. The following instructions, designed for either situation, assume the FTS product volumes are already resident on the hard disk.

Installation of the File Transfer Server for a networked Apple // is described in the following sections. Briefly, the installation consists of

(1) preparing your modem for use with FTS.

(2) creating and transferring files to an FTS virtual volume.

(3) modifying, if necessary, the telephone number in the FTS command file so that FTS will dial properly.

(4) testing your File Transfer Server by executing the FTS command file included with the system.

(5) modifying the FTS command file to conform to your needs.

(6) setting, if desired, the profile of the FTS station to auto-boot.

2.1.1 Installation Requirements

To install the networked Apple // File Transfer Server, you need

(1) an Apple // connected to a PLAN File Server network that has the Apple // Pascal shared library package installed.

(2) one of the modems supported by Apple // FTS. (See the appendices.)

(3) the FTS product virtual volumes on your hard disk.

(4) access to a telephone line. Please see the user's manual for your modem for specifications regarding touch-tone vs. pulse dialing, etc.

After installation, you will have

(1) the same Apple // (now elevated to the status of File Transfer Server), with a modem connected to it, and a telephone line trailing out of the modem.

(2) virtual volume //SYSTEM/FTS, containing your FTS code file, command file, and log file.

2.1.2 Contents of the Distributed Virtual Volumes

The volumes containing the FTS code, command, and log files have pathnames

//PRODUCTS/FTS/X.X/APPLE2/NETWORK/<modem>

where "X.X" stands for the product release number (appearing on the configuration document that is shipped with the FTS software), and "<modem>" stands for the name of the modem for which the volume is specific. These are all bootable Pascal volumes, with Pascal names "N2-----:" (the blanks stand for the name of a modem). The following are examples of pathnames:

> //PRODUCTS/FTS/1.1/APPLE2/NETWORK/MICRO
> //PRODUCTS/FTS/1.0/APPLE2/NETWORK/CAT
> //PRODUCTS/FTS/2.2/APPLE2/NETWORK/OWL

The Pascal names for these volumes are

> N2MICRO·
> N2CAT:
> N2OWL:

You will need only the volume for which you have a modem. There is one other volume on the tape:

> //PRODUCTS/FTS/X.X/APPLE2/NETWORK/TEST

It is a nonbootable Pascal volume, with Pascal name "FTSTEST:".

Volume N2----- contains the following files:

- STARTCMD.TEXT, which sets the date, and then chains to the FTS code file.

- FTSN2-----.CODE, which is the File Transfer Server code file specific to your particular modem.

- FTSCMD.TEXT, which causes FTS to call your support organization, send FTSTEST:TESTSEND.TEXT and receive FTSTEST:TESTRECV.TEXT.

- FTSLOG.TEXT, which is a 50-block log file, initially blank.

Volume FTSTEST contains TESTSEND.TEXT. This is the test Pascal text file sent to your support organization by FTS during test run.

2.1.3 Installation Instructions

Prepare your modem for use with the File Transfer Server. Please refer to the appropriate appendix of this manual for instructions.

Making a working virtual volume for FTS

To make a working virtual volume for FTS, follow these instructions:

(1) Boot an Apple // workstation by turning it off and on. Press <Esc> when the logo appears, to avoid the possibility of auto-booting into an undesired volume. When the "VOLUME TO BOOT:" line appears, press <Ctrl>X to remove the profiled boot volume. Substitute //LIB/APPLE2/PASCAL40, //LIB/APPLE2/PASCAL80, //LIB/APPLE2E/PASCAL40, or //LIB/APPLE2E/PASCAL80,R and press <Return>.

(2) When the Pascal command line appears, eX(ecute NET.

(3) Create a virtual volume for your File Transfer Server by issuing this command:

CREATE //SYSTEM/FTS,T=P,SIZE=280.B,RW,D11

NOTE: If you want a larger volume, simply specify a larger size when using the CREATE command.

(4) Mount the FTS product volume specific to your modem by issuing the following command (on one line):

MOUNT //PRODUCTS/FTS/X.X/APPLE2/NETWORK
/<modem>,D12

making sure to substitute the release number for "X.X", and substituting the name of your modem for "<modem>".

(5) Issue the command "SET DRIVES 11,12 VIRTUAL". Type 'Q'<Return> to return to the command level. Type 'F' to select the Filer.

NOTE: While in the Filer, you will be warned from time to time that units 4 and 5 have the same name. Don't worry about this. There is no danger at this time because the library volume is mounted with read-only access on both drives 4 and 5.

(6) Z(ero the volume just created (in device #11). Name it FTSVIRT. (We recommend that you call this volume FTSVIRT rather than simply FTS in order to avoid confusion with other FTS volumes.)

(7) T(ransfer "#12:=" to "FTSVIRT:$". Use of the wild cards in this way will cause all of the files from the product volume to be transferred to FTSVIRT.

(8) Q(uit the Filer. eX(ecute NET, and issue the command "UNMOUNT D12". Return to the Pascal Command level by typing Q<Return>.

Editing the FTSVIRT:FTSCMD.TEXT File

The telephone number included in the test FTSCMD.TEXT file is

the number of your support organization. If your installation is in a telephone area where this number will not work, you will have to edit the telephone number in the file FTSVIRT:FTSCMD.TEXT in order to reach your support organization on your test run. If it is not necessary to edit the telephone number, then proceed to step 10.

(1) Select E(dit. When prompted for the name of the file to be edited, type "FTSVIRT:FTSCMD".

(2) Press <Return> until the cursor is at the line with the phone number to be changed.

   SITE XXXX IS PHONE YYYYYYY;

(3) Insert or delete as required. Make sure the semicolon remains at the end of the line.

(4) Q(uit the Editor, S(aving the file with the same name. You will be asked whether to delete the old version of FTSVIRT:FTSCMD.TEXT before the save; respond 'Y'. E(xit to the command level.

Testing Your File Transfer Server:

(1) Reboot your Apple // by turning it off and on. Press <Esc> to avoid the possibility of auto-booting into an undesired volume.

(2) When the "VOLUME TO BOOT:" line appears, press <Ctrl>X to remove the profiled boot volume. Substitute //SYSTEM/FTS, and press <Return>.

The File Transfer Server should now operate automatically. It displays a banner and chains to the File Transfer Server Program.

The screen will clear as FTS executes. FTS initializes your new

log file as described in Chapter 3. The screen displays the following:

Uninitialized or damaged file; initializing it
Initialized 50 blocks
Logging to file FTSLOG.TEXT, size is 50 blocks

FTS will now give you ten seconds to change the command file from FTSVIRT:FTSCMD. Do not press the spacebar; allow FTS to proceed. The following appears on the screen:

Press the spacebar to change
command file from FTSCMD.TEXT

FTS will auto-start in 10 seconds...
Reading FTSVIRT:FTSCMD.TEXT

The file FTSVIRT:FTSCMD.TEXT will be displayed on your screen line-by-line as FTS compiles it. At the end FTS should print

---no errors detected---
Memory available = _____

Finding no errors, FTS will commence execution of the command file. The following will appear on the screen:

Doing "DEMOPROC"
MOUNT /MAIN/PRODUCTS/FTS/X.X/APPLE2/
        NETWORK/TEST,D11,R0,UPD (on one line)
Dialing: x-xxx-xxx-xxxx
Waiting for phone to be answered . . .
Answered
Answering version is X.X
Opening TESTSEND.TEXT
Sending block 0
Sending block 1
Sending block 2
Sending block 3
Creating file TESTRECV.TEXT
block 0 received.

block 1 received.
block 2 received.
block 3 received.

Hanging up the phone at XX:XX:XX

Waiting to do "DEMOPROC" in 178 minutes

XX:XX:XX

If all has gone well, your File Transfer Server will now wait for another 3 hours to do "DEMOPROC" again; you should stop it before it does. If all has not gone well, FTS will execute the RETRY instruction, and wait only 5 minutes before attempting "DEMOPROC" again If the retrial of "DEMOPROC" fails, try rebooting as described above.

Aborting the File Tranfer Service

To abort the operation of the File Transfer Server, press

```
<Esc>
Q<Return>
Y<Return>
```

Verifying the Results of Your Transfer

To verify results of the transfer:

(1) eX(ecute LIB:NET. Issue the following commands:

```
MOUNT ; PRODUCTS/FTS/X.X/APPLE2/NETWORK/TEST,D12
SET DRIVE 12 VIRTUAL
QUIT
```

(2) Enter the F(iler, and select T(ransfer. When prompted, type "FTSTEST:TESTRECV.TEXT,CONSOLE:". This will cause the contents of the file you just received from your support organization to be displayed on your screen, so you can

verify that FTS has worked properly.

Modify FTSCMD.TEXT to conform to your needs. As it now stands, your File Transfer Server is prepared to call your support organization whenever you boot it. In order for your FTS to do anything else, you will have to give it a new command file. We recommend that you do this by altering the FTSCMD.TEXT that you transferred to //SYSTEM FTS from the //PRODUCTS-----: volume; this will help you avoid syntax errors.

(3) Q(uit the F(iler, returning to the command level. Select the E(ditor. When asked for the name of the file to be edited, type "FTSCMD".

(4) Edit the file to your needs (see Chapter 4 of this manual). Save the file with the same name when finished.

You can set the profile of the FTS station to auto-boot. This will make the File Transfer Server run automatically whenever the Apple // is booted. Please refer to the *PLAN File Server Apple // User's Guide* section on setting user station profiles. (You will want to boot

> volume //SYSTEM/FTS
> shared library volume //LIB/APPLE2/UCSD/PASCAL
> Pascal access rights RW,UPD

and

> auto-boot YES.)

Testing the New FTSCMD.TEXT:

Start up your File Transfer Server by rebooting the Apple //. If you have not set the profile, use <Ctrl>X to substitute //SYSTEM/FTS for the profiled boot volume. FTS will now process the commands you have just put into the file FTSVIRT:FTSCMD.TEXT.

2.2 Standalone Apple // FTS Installation

Installation of the File Transfer Server for standalone Apple // is described in the following sections. Briefly, the installation consists of

(1) making a backup copy of the distribution disk.

(2) installing and initializing your Nestar Clock/Calendar Card.

(3) preparing your modem for use with FTS.

(4) if necessary, modifying the telephone number in the FTS command file so that FTS will dial properly.

(5) testing your File Transfer Server by executing the FTS command file included on the distribution disk.

(6) modifying the FTS command file to conform to your needs.

2.2.1 Installation Requirements

To install the stand-alone Apple // File Transfer Server, you need

(1) a 64k Apple //.

(2) two 5.25" floppy disk drives, attached to the same disk controller card, with the controller card in slot 6 of the Apple.

(3) one of the Apple //-compatible modems supported by FTS.

(4) the FTS package, which consists of

   – a 5.25" disk, labeled according to the modem you have. For example, "S2MICRO", "S2CAT", or "S2OWL". (NOTE: Hereafter, the FTS disk you are installing shall be

referred to as "S2-----".)

– a Nestar Clock/Calendar Card.

(5) a bootable Pascal disk from which you can go into the E(ditor, such as "APPLE1:" from Apple. For the sake of brevity, we shall refer to this disk simply as "APPLE1."

(6) a Pascal disk containing the file FORMATTER.CODE, such as "APPLE3:" from Apple. Again, for brevity's sake, we shall refer to this disk simply as "APPLE3:" (bearing in mind that any disk containing FORMATTER.CODE will do equally well).

(7) one blank 5.25" floppy disk.

(8) access to an ordinary telephone line. Please see the user's manual for your modem for specifications regarding touch-tone vs. pulse dialing, etc.

After installation, you will have

(1) the same Apple // (now elevated to the status of File Transfer Server), with the Nestar Clock/Calendar Card installed, a modem connected, and a telephone line trailing out of the modem.

(2) a backup FTS disk, named "S2-----".

(3) a bootable FTS disk, also named "S2-----".

2.2.2 Contents of the Distribution Disk

The File Transfer Server is shipped on one 5.25" floppy disk, labeled "S2-----". (The "S2" stands for Standalone version, Apple //; the blanks depend upon your modem.) This disk is a bootable Pascal volume.

Disk S2----- contains the following files:

(1) SYSTEM.STARTUP, also known as FTSS2-----.CODE, is the File Transfer Server code file specific to your particular modem.

(2) FTSCMD.TEXT causes FTS to call your support organiza-tion, sending TESTSEND.TEXT and receiving to TESTRECV.TEXT.

(3) FTSLOG.TEXT is a 50-block log file, initially blank.

(4) TESTSEND.TEXT is the test Pascal text file sent to your support organization by FTS during test run.

(5) SETCLOCK.CODE sets the time and date on the Clock/Calendar Card.

(6) Also contained on disk S2-----, the following files are needed for successful use of Pascal operating system:

> SYSTEM.APPLE
> SYSTEM.PASCAL
> SYSTEM.MISCINFO
> SYSTEM.LIBRARY

2.2.3 Installation Instructions

Making a Copy of the FTS Disk

To make a copy of the FTS disk, follow these instructions:

(1) Boot your Apple //, after inserting the "APPLE1:" disk (a bootable Pascal disk) in drive 4 (that is, the drive connected to the port on the disk controller card labeled "DRIVE 1").

(2) Insert the "APPLE3:" disk (which contains FORMATTER.CODE) in drive 4. Insert your blank/dispensible disk in drive 5 (that is, the drive connected to the port on the controller card labeled "DRIVE 2").

(3) eX(ecute #4:FORMATTER. To the prompt "FORMAT WHICH DISK (4, 5, 9..12)?" answer "5". After formatting, the prompt will appear again. Simply press <return> this time.

(4) Exchange the APPLE1: disk for the APPLE3: disk that is presently in drive 4. Select the F(iler; then exchange the distribution disk (labeled "S2-----") for "APPLE1:" in drive 4.

(5) Select T(ransfer. To the prompt "Transfer?", respond "#4:,#5:". This will cause everything on the distribution disk to be transferred to your blank disk. Answer 'Y' to the prompts "Transfer 280 blocks?" and "Destroy BLANK?".

(6) Put the original disk away as a backup. Use the disk you have just made for all subsequent steps requiring an FTS disk.

Install and initialize your Nestar Clock/Calendar Card, by following the instructions in Appendix B of this manual.

Prepare your modem for use with the File Transfer Server, by following the instructions in the appendix for your specific modem.

If necessary, edit the telephone number in the file FTSCMD.TEXT (If this is not necessary, proceed to step 8.):

Editing the S2-----:FTSCMD.TEXT File

If necessary, edit the telephone number in the FTSCMD.TEXT file.

The telephone number included in the test FTSCMD.TEXT file is

the number of your support organization. If your installation is in a telephone area where this number will not work. then you will have to edit the telephone number in the file S2----- :FTSCMD.TEXT to reach your support organization on your test run:

(1) Reinsert the APPLE1: disk in drive 4. If you have not already done so, Q(uit the F(iler to return to the command level.

(2) Select E(dit. When prompted for the name of the file to be edited, type "#5:FTSCMD.TEXT".

(3) Press <return> until the cursor is at the line with the phone number to be changed.

    SITE XXXXX IS PHONE YYYYYYY;

(4) Insert or delete as required. Make sure the semicolon remains at the end of the line.

(5) Q(uit the Editor, S(aving the file with the same name. You will be asked whether to purge the old version of #5:FTSCMD.TEXT before the save; respond "Y". E(xit to the command level.

Testing your File Transfer Server

To test your File Transfer Server, reboot your Apple // with your copy of the FTS disk S2----- in drive 4.

The File Transfer Server should now operate automatically. First, it displays a banner. Then, FTS initializes your new log file, as described in Chapter 3, and displays the following messages:

    Uninitialized or damaged file; reinitializing it
    Initialized 6 blocks

Logging to file FTSLOG.TEXT,
size is 6 blocks

FTS will now give you 10 seconds to change the command file from FTSCMD. Do not press the spacebar; allow FTS to proceed. The following appears on the screen:

Press the spacebar to change
command file from FTSCMD.TEXT

FTS will auto-start in 10 seconds...
Reading FTSCMD.TEXT

The file FTSCMD.TEXT will be displayed on your screen line-by-line as FTS compiles it. At the end FTS should print

---No errors detected---
Memory available = _____

Finding no errors, FTS will now commence execution of the command file, displaying the following messages:

Doing "DEMOPROC"
Dialing X-XXX-XXX-XXXX
Waiting for phone to be answered . . .
Answered
Answering version is X.X
Opening #4:TESTSEND.TEXT
Sending block 0
Sending block 1
Sending block 2
Sending block 3
Creating file #4:TESTRECV.TEXT
Block 0 received.
Block 1 received.
Block 2 received.
Block 3 received.

Hanging up the phone at XX:XX:XX

Waiting to do "DEMOPROC" in 178 minutes

XX:XX:XX

If all has gone well, your File Transfer Server will now wait for another 3 hours to do "DEMOPROC" again; you should stop it before it does. If all has not gone well, FTS will execute the RETRY instruction, and wait only 5 minutes before attempting "DEMOPROC" again. If the retrial of "DEMOPROC" fails, try rebooting as described above.

Aborting Operation of the File Transfer Server

To abort operation of the File Transfer Server, press

    <Esc>
    Q<Return>
    Y<Return>

Verifying the Results of Your Transfer

(1) Insert disk "APPLE1:" in drive 5. Enter the F(iler, and select T(ransfer.

(2) When prompted for which file to transfer, type "#4:TESTRECV.TEXT,CONSOLE:". This will cause the contents of the test-receiver file to be displayed on your screen, so you can verify that FTS has worked properly.

Modifying FTSCMD.TEXT to conform to your needs.

As it now stands, your File Transfer Server is prepared to call your support organization whenever you boot it. In order for your FTS to do anything else, you will have to give it a new command file. We recommend that you accomplish this by altering the FTSCMD.TEXT that is already on your FTS disk; this will help you avoid syntax errors:

(1) Q(uit the Filer, returning to the command level. Select the E(ditor.

(2) When asked for the name of the file to be edited, type "#4:FTSCMD".

(3) Edit the file to your needs (see Chapter 4 of this manual). Save the file with the same name when finished.

Testing the FTSCMD.TEXT

To test the new FTSCMD.TEXT, start up your File Transfer Server by rebooting the Apple // with your FTS disk in drive 4. FTS will now process the commands you have just put into the file FTSCMD.TEXT.

2.3 Network Apple /// FTS Installation

The File Transfer Server for networked Apple /// is shipped in part as virtual volumes. If you ordered FTS at the time of your initial PLAN File Server network order, these volumes will already exist on your hard disk. If you ordered FTS at a later time, you will receive a tape containing the virtual volumes; instructions for transferring the contents of the tape to the disk will accompany the tape. The following instructions, designed for either situation, assume the FTS product volumes are already resident on the hard disk.

Installation of the File Transfer Server is described in the following sections. Briefly, the installation consists of

(1) making a backup of the distribution disk specific to your modem.

(2) preparing your modem for use with FTS.

(3) creating and transferring files to an FTS virtual volume

(4) if necessary, modifying the telephone number in the FTS command file so that FTS will dial properly.

(5) testing your File Transfer Server by executing the FTS command file included on the distribution volume.

(6) modifying the FTS command file to conform to your needs.

2.3.1 Installation Requirements

To install the File Transfer Server, you will need

(1) an Apple /// connected to a PLAN File Server network that has had the SOS shared library package installed.

(2) one of the modems supported by the Apple /// FTS package (see Appendices F-G).

(3) the FTS package, which consists of

– an RS-232C cable

– one or more 5.25" floppy disks, labeled according to the modem being used. For example,

N3SMART
N3SM12

NOTE: Hereafter, the FTS disk you will be using will be referred to as "N3-----".

(4) the FTS product virtual volumes on your hard disk.

(5) the disk from Apple (which was included with your Apple ///) labeled "System Utilities."

(6) a Pascal boot disk, with network drivers, whose STARTCMD file causes the virtual volume //LIB/APPLE3.SOS to be mounted on some virtual drive. (See the *PLAN File Server Apple /// SOS User's Guide.*)

(7) one blank 5.25" floppy disk.

(8) access to an ordinary telephone line.

After installation, you will have

(1) the same Apple /// (now elevated to the status of File Transfer Server), with a modem connected to it, and a telephone line trailing out of the modem.

(2) the unaltered System Utilities and Pascal boot disks.

(3) backup disk N3-----.

(4) boot disk FTSREAL.

(5) virtual volume //SYSTEM/FTS3, containing your FTS code file, command file, and log file.

2.3.2 Contents of the Distribution Volumes

Part of the File Transfer Server software is distributed on a floppy disk; the rest is shipped as a virtual volume. The 5.25" floppy disks are labeled according to the modem driver being used: N3-----. (The N3 in this name stands for Apple ///, Networked version.) These disks are bootable SOS-Pascal disks, with SOS names /N3-----.

The virtual volumes containing the FTS code, command, and log files have pathnames

//PRODUCTS/FTS/X.X/APPLE3/NETWORK/<modem>

where "X.X" stands for the product release number, and "<modem>" stands for the name of the modem. These are SOS-formatted virtual volumes, with SOS names "/VIRT-----", the blanks depending upon the modem. The following are examples of virtual volume pathnames:

//PRODUCTS/FTS/1.1/APPLE3/NETWORK/SMART
//PRODUCTS/FTS/2.0/APPLE3/NETWORK/SM1200

Examples of SOS names for these volumes are

/VIRTSMART
/VIRTSM1200

There is one other distributed virtual volume, with the pathname

//PRODUCTS/FTS/X.X/APPLE3/NETWORK/TEST

It has SOS name /FTSTEST3. It contains text files to be used during the testing of your File Transfer Server.

Disk /N3----- contains the following files:

(1) SYSTEM.STARTUP, also known as NESTAR.START, causes contents of STARTCMD.TEXT to be processed.

(2) STARTCMD.TEXT mounts //LIB/APPLE3/SOS and //SYSTEM/FTS3, and then chains automatically to FTS program.

(3) SYSTEM.LIBRARY is the minimal SOS library required by NESTAR.START.

(4) DEFAULTS.TEXT sets default FTSCMD and FTSLOG to volume FTSVIRT3.

(5)   SOS.DRIVER contains drivers for the network, the modem, and one 5.25" drive, in addition to the Apple's built-in drive.

(6)   Also contained on disk /N3-----, the following files are needed to use the Pascal operating system:

SOS.KERNEL
SOS.INTERP
SYSTEM.PASCAL
SYSTEM.MISCINFO

Virtual Volume /VIRT----- contains the following files:

(1)   FTSN3-----.CODE is the File Transfer Server software.

(2)   FTSCMD.TEXT causes FTS to call your support organization, send /FTSTEST3/TESTSEND.TEXT, and receive /FTSTEST3/TESTRECV.TEXT.

(3)   FTSLOG.TEXT is a 50-block circular log file, initially blank.

Virtual Volume /FTSTEST3 contains TESTSEND.TEXT, the test Pascal text file sent to your support organization by FTS during test run.

2.3.3 Installation Instructions

Making a Copy of the FTS Disk

We advise you to make a working copy of the FTS boot disk you will be using, saving the original as a backup. Unless you will be using more than one type of modem, you will need to copy only the disk specific to your modem. We recommend that you use the System Utilities disk from Apple in order to do this.

(1) Boot your Apple /// with the System Utilities disk in the built-in drive.

(2) Select 'D' (Device handling commands); then 'C' (Copy volumes).

(3) Remove the System Utilities disk from the built-in drive, replacing it with the FTS disk specific to your modem.

(4) Have ready the disk you want to copy to. Make sure the disk's write-protect notch is not covered. (NOTE: This disk can have anything on it, to begin with. The COPY utility will wipe everything off the disk, reformatting it if necessary.)

(5) Respond to these prompts as follows:

PROMPT:	RESPONSE:
Copy the volume	.D1
to the volume	.D1
with the new volume name	N3-----
destroy old XXXXX?	Y [may not appear]

Your Apple will now direct you to swap disks until the copy is complete. (The source disk is N3----- and the destination disk is the "blank" floppy. The blank floppy will become your usable FTS volume.)

(6) Put the source N3----- disk away as a backup. Use the disk you just made (FTSREAL) for all further FTS operations.

(7) Write-protect the disk FTSREAL by affixing a sticker over the write-protect notch.

To prepare the modem for use with the File Transfer Server, see the appropriate Appendix (F or G).

Creating a Working Virtual Volume for your FTS Files

NOTE: The following assumes that the SOS shared library software has been installed on your system. You will need a Pascal boot disk with a STARTCMD file that causes //LIB/APPLE3/SOS to be mounted. (You can get this disk from your system manager.)

To create a working virtual volume for your FTS files:

(1) Boot your Apple /// with the Pascal boot disk in the main disk drive.

(2) From the command level, eX(ecute /LIB/NET.

(3) In order to prevent the possible unmounting of //LIB/APPLE3/SOS by the next step, remount the //LIB/APPLE3/SOS by issuing this command:

    MOUNT //LIB/APPLE3/SOS,D1

(4) Create a virtual volume for your File Transfer Server by typing

    CREATE //SYSTEM/FTS3,T=3,SIZE=280.B,RW,D2

(5) Mount the FTS product volume specific to your modem by typing (on one line)

    MOUNT //PRODUCTS/FTS/X.X/APPLE3/NETWORK
    /<modem>,D3

making sure to substitute the release number (which appears on the configuration document that was shipped to you with the FTS software) for "X.X", and substituting the name of your modem for "<modem>".

(6) Select 'D' (Device handling commands); then 'C' (Copy volumes).

(7) Respond to the following prompts:

PROMPT:	RESPONSE:
Copy the volume	.N3
to the volume	.N2
with new volume name	FTSVIRT3

Editing the /FTSVIRT3/FTSCMD.TEXT file

The telephone number included in the test FTSCMD.TEXT file is the number of your support organization. If your installation is in a telephone area where this number will not work, you will have to edit the telephone number in the file

/FTSVIRT3/FTSCMD.TEXT

in order to reach your support organization on your test run. If you do not need to modify the telephone number, then proceed to the next step.

(1) Press <Esc> twice, then 'Q', to return to the Pascal command level.

(2) Select E(dit. When prompted for the name of the file to be edited, type "/FTSVIRT3/FTSCMD".

(3) Press <Return> until the cursor is at the line with the phone number to be changed.

SITE XXXXX IS PHONE YYYYYYY;

(4) Insert or delete as required. Make sure the semicolon remains at the end of the line.

(5) Q(uit the Editor, S(aving the file with the name /FTSVIRT3/FTSCMD. You will be asked whether to delete the old version of /FTSVIRT3/FTSCMD.TEXT before the save; respond 'Y'. E(xit to the command level.

Testing your File Transfer Server

To test the File Transfer Server,

(1) Insert disk "FTSREAL" in your Apple ///'s disk drive.

(2) Boot your Apple.

The File Transfer Server should now operate automatically. A banner and the following messages will be displayed. First, some internal housekeeping:

> mounting FTS virtual volume. . .
> mounting SOS library volume. . .
> chaining to File Transfer Server Program. .

The screen then clears as FTS executes:

> log file changed to
> /FTSVIRT3/FTSLOG.TEXT by defaults file
> command file changed to
> /FTSVIRT3/FTSCMD.TEXT by defaults file

Then, FTS initializes your new log file, as described in Chapter 3.

> Uninitialized or damaged file; initializing it
> Initialized 50 blocks
> Logging to file /FTSVIRT3/FTSLOG.TEXT,
> size is 50 blocks

FTS will now give you 10 seconds to change the command file from /FTSVIRT3/FTSCMD. Do not press the spacebar; allow FTS to proceed. The following appears on the screen:

> Press the spacebar to change
> command file from FTSCMD.TEXT

> FTS will auto-start in 10 seconds...
> Reading /FTSVIRT3/FTSCMD.TEXT

The file .FTSVIRT3.FTSCMD.TEXT will be displayed on your screen line-by-line as FTS compiles it. At the end FTS should print

> ---No errors detected---
> Memory available = _____

Finding no errors, FTS will now commence execution of the command file and display the following messages:

> Doing "DEMOPROC"
> MOUNT /MAIN/PRODUCTS/FTS/X.X/APPLE3/NETWORK/
>   TEST,D3,RO UPD (on one line)
> Dialing: X-XXX-XXX-XXXX
> Waiting for phone to be answered...
> Answered
> Answering version X.X
> Opening TESTSEND.Text
> Sending block 0
> Sending block 1
> Sending block 2
> Sending block 3
> Creating file TESTRECV.Text
> Block 0 received.
> Block 1 received.
> Block 2 received.
> Block 3 received.

Hanging up the phone at XX:XX:XX

Waiting to do "DEMOPROC" in 178 minutes

<div align="center">XX:XX:XX</div>

If all has gone well, your File Transfer Server will now wait for another 3 hours to do "DEMOPROC" again; you should stop it before it does. If all has not gone well, FTS will execute the RETRY instruction, and wait only 5 minutes before attempting "DEMOPROC" again. If the retrial of "DEMOPROC" fails, try rebooting with FTSREAL in the built-in drive.

Aborting the File Transfer Server

To abort operation of the File Transfer Server, press

> <Esc>
> Q<Return>
> Y<Return>

Verifying the Results of Your Transfer

To verify results of the transfer:

(1) eX(ecute /LIB/NET. Issue the commands

> MOUNT //PRODUCTS/FTS/X.X/APPLE3
> /NETWORK/TEST,D3 (typed on one line)
> SET .N3 VIRTUAL

(2) Quit the NET program by typing Q<Return>.

(3) Enter the F(iler, and select T(ransfer. When prompted, type "/FTSTEST3/TESTRECV.TEXT,.CONSOLE" (the file you are transferring). This will cause the contents of the test-receiver file to be displayed on your screen, so you can verify that FTS has worked properly.

Editing FTSCMD.TEXT

Next, modify FTSCMD.TEXT to conform to your needs: As it now stands, your File Transfer Server is prepared to call your support organization whenever you boot it. In order for your FTS to do anything else, you will have to give it a new command file. We recommend that you accomplish this by altering the syntax errors:

(1) Return to the command level and select the E(ditor. When asked for the name of the file to be edited, type "/FTSVIRT3/FTSCMD".

(2) Edit the file to your needs (see Chapter 4 of this manual). Save the file with the same name when finished.

Testing the New FTSCMD

To test the new FTSCMD start up your File Transfer Server by rebooting the Apple with the usable disk FTSREAL in the main drive. FTS will now process the commands you have just put into the file /FTSVIRT3/FTSCMD.TEXT.

2.4 Standalone Apple /// FTS Installation

Installation of the standalone File Transfer Server is described in the following sections. Briefly, the installation consists of

(1) making a copy of the distribution disk.

(2) preparing your modem for use with FTS.

(3) if necessary, modifying the telephone number in the FTS command file so that FTS will dial properly.

(4) testing your File Transfer Server by executing the FTS command file included with the system.

(5) modifying the FTS command file to conform to your needs.

2.4.1 Installation Requirements

To install the standalone File Transfer Server, you will need

(1) an Apple ///.

(2) one of the modems supported by the Apple /// FTS package. (See the appendices.)

(3) the FTS package, which consists of

(a) a 5.25" floppy disk labeled according to the modem being used. Possible label contents:

S3SMART
S3SM12

NOTE: Hereafter, your FTS disk shall be referred to as "S3-----".

(b) an RS-232C cable.

(4) the SOS disk from Apple (which was included with your Apple ///) labeled "System Utilities."

(5) a Pascal boot disk, from which you can gain access to the Editor.

(6) one blank 5.25" floppy disk.

(7) access to an ordinary telephone line.

After installation, you will have

(1) the same Apple /// (now elevated to the status of File Transfer Server), with a modem connected to it, and a tele-phone line trailing out of the modem.

(2) the unaltered System Utilities and Pascal boot disks.

(3) backup disk S3-----.

(4) boot disk FTS.

2.4.2 Contents of the Distribution Disk

The File Transfer Server is shipped on one 5.25" floppy disk, labeled S3-----. (The "S3" in these names stands for Apple ///, Standalone version.) This disk is a bootable SOS-Pascal disk; the FTS code file has been renamed *SYSTEM.STARTUP so that it will execute automatically when the volume is booted. (File names preceded with * are write-protected.)

Disk S3----- contains the following files:

(1) *SYSTEM.STARTUP, also known as FTSS3-----.CODE, contains the File Transfer Server software.

(2) FTSCMD.TEXT calls your support organization and sends it a file called TESTSEND; then it receives a file called TES-TRECV. This is actually an ASCII file that acts like a text file.

(3) FTSLOG.TEXT is a 6-block circular log file, initially blank.

(4) TESTSEND.ASCI is a test SOS ASCII file sent to your support organization during test run.

(5) *SYSTEM.LIBRARY is the minimal SOS library required by FTS.

(6) *SOS.DRIVER contains drivers for RS-232, the built-in 5.25" floppy disk, and one additional 5.25" floppy disk.

   Disk S3----- also contains the following files, which are needed to boot the Apple /// into Pascal:

   *SOS.KERNEL
   *SOS.INTERP
   *SYSTEM.PASCAL
   *SYSTEM.MISCINFO

2.4.3 Installation Instructions

Making a Copy of the FTS Disk

To make a copy of the distribution disk, follow these instructions:

The File Transfer Server writes to a file called FTSLOG.TEXT on the FTS disk. Since the FTS distribution disk is write-protected, you must copy its contents onto another, nonprotected disk. We recommend that you use the System Utilities disk from Apple in order to do this.

(1) Boot your Apple /// with the System Utilities disk in the built-in drive.

(2) Press 'D' ("Device handling commands"); then 'C' ("Copy").

(3) Replace the System Utilities disk in the main drive with the "S3-----" disk.

(4) Have ready the disk you want to become your usable FTS volume. Make sure that this disk's write-protect notch is not covered. (NOTE: This disk can have anything on it to begin with, including Apple // files. The COPY utility will wipe everything off the disk, reformatting it if necessary.)

(5) Respond to these prompts as follows:

PROMPT:	RESPONSE:
Copy the volume	.D1
to the volume	.D1
with new volume name	FTS
destroy old XXXXXX?	Y [may not appear]

Your Apple will now direct you to swap disks until the copy is complete. (The disk is the "source volume"; the disk which will become your usable FTS volume is the

"destination volume".)

(6) Put the source disk (S3-----) away as a backup. Use the
    disk you just made ("FTS") for all further FTS operations.

To prepare your modem for use with the File Transfer Server,
refer to Appendices F and G.

Editing the FTSCMD.TEXT

If necessary, edit the telephone number in file
/FTS/FTSCMD.TEXT (If this is unnecessary, skip to step 8.):

The telephone number included in the test FTSCMD.TEXT file is
the number of your support organization. If your installation is in
a telephone area where this number will not work, then you will
have to edit the telephone number in the file
/FTS/FTSCMD.TEXT in order to reach your support organization
on your test run.

(1) In your Apple's built-in disk drive, insert a bootable Pascal
    disk from which you can enter the Pascal Editor. Boot the
    Apple.

(2) Select E(dit; then insert disk "FTS". When prompted for the
    name of the file to be edited, type ".D1/FTSCMD".
    FTSCMD.TEXT will be read as an ASCII file.

(3) Press <Return> until the cursor is at the line with the
    phone number to change.

    SITE XXXX IS PHONE YYYYYYY;

(4) Insert or delete as required. Make sure the semicolon
    remains at the end of the line.

(5) Q(uit the Editor, S(aving the file with the same name. You will be asked whether to delete the old version of /FTS/FTSCMD.TEXT before the save; respond 'Y'.

Testing Your File Transfer Server

To test you File Transfer Server:

(1) Make sure disk "FTS" is in your Apple ///'s built-in disk drive.

(2) Boot your Apple.

The File Transfer Server should now operate automatically. It will display a banner, and then initialize your new log file. You will see the following messages:

Uninitialized or damaged file; initializing it
Initialized 6 blocks
Logging to file FTSLOG.TEXT,
size is 6 blocks

FTS will now give you 10 seconds to change the command file from /FTS/FTSCMD. Do not press the spacebar; allow FTS to proceed.

The following appears on the screen:

Press the spacebar to change
command file from FTSCMD.TEXT

FTS will auto-start in 10 seconds...
Reading FTSCMD.TEXT

The file /FTS/FTSCMD.TEXT will be displayed on your screen line-by-line as FTS compiles it. At the end FTS should print

---no errors detected---
Memory available = _____

Finding no errors, FTS will commence execution of the command file, displaying the following messages:

> Doing "DEMOPROC"
> Dialing x-xxx-xxx-xxxx
> Waiting for phone to be answered....
> Answered
> Answering version is X.X
> Opening .D1/TESTSEND.ASCI
> Sending block 0
> Creating file .D1/TESTRECV.ASCI
> Block 0 received.
>
> Hanging up the phone at XX:XX:XX
>
> Waiting to do "DEMOPROC" in 178 minutes
>
> XX:XX:XX

If all has gone well, your File Transfer Server will now claim that it is waiting 3 hours to do "DEMOPROC" again. Such is not the case, however, because there is no clock in your Apple ///. FTS has no way of telling how much time has elapsed, so it will simply count from 0 to 59 over and over again until you stop it by hitting <Esc>.

If all has not gone well (e.g., the line was busy at your support organization, or there was too much static on the phone line), FTS will execute the RETRY instruction, claiming to wait 5 minutes before reattempting "DEMOPROC". Again, since there is no clock, FTS will never count past 1 minute, and the retrial will not take place without user intervention. If the first test run of "DEMOPROC" fails, you must hand-schedule a retrial:

(1) Press <Esc> to halt the File Transfer Server.

(2) Select S(chedule. Schedule "DEMOPROC".

(3) Select C(ontinue. FTS will now retry "DEMOPROC".

Aborting Operation of the File Transfer Server

To abort operation of the File Transfer Server, press

    ‹Esc›
    Q‹Return›
    Y‹Return›

Verifying Results of the Transfer

To verify results of the transfer, enter the F(iler, and select T(ransfer. When prompted for what file to transfer, type ",FTS/TESTRECV.ASCI,CONSOLE:". This will cause the contents of the test-receiver file to be displayed on your screen, so you can verify that FTS has worked properly.

Modifying FTSCMD.TEXT

Next, modify FTSCMD.TEXT to conform to your needs. As it now stands, your File Transfer Server is prepared to call your support organization whenever you boot it. In order for your FTS to do anything else, you will have to give it a new command file. We recommend that you accomplish this by altering the FTSCMD.TEXT on disk "FTS"; this will help you avoid syntax errors.

(1) Boot any Pascal volume that allows you access to the Pascal Editor.

(2) From the command level, go into the E(ditor.

(3) Remove the Pascal volume, replacing it with your disk "FTS".

(4) Edit file .D1/FTSCMD.TEXT to your needs (see Chapter 4 of this manual).

Testing the New FTSCMD

Reboot the Apple with your disk "FTS" in the built-in drive. FTS will now process the commands you have just put into the file FTSCMD.TEXT.

2.5 Network IBM PC FTS Installation

The File Transfer Server for the networked IBM personal computer is shipped to you on virtual volumes. If you ordered FTS at the time of your initial PLAN File Server network order, these volumes already exist on your hard disk. If you ordered FTS at a later time, you will receive a tape containing the virtual volumes and instructions for transferring the contents of the tape to the disk. The following instructions assume that the FTS product volumes are already resident on the hard disk.

Installation of the File Transfer Server for a networked IBM personal computer is described in the following sections. The installation process consists of

(1) Preparing your modem for use with FTS.

(2) Creating and transferring files to an FTS virtual volume.

(3) Modifying the telephone number in the FTS command file as necessary so that FTS will dial properly.

(4) Testing your File Transfer Server by executing the FTS command file included with the system.

(5) Modifying the FTS command file to conform to your needs.

(6) Setting the auto-boot profile of the FTS station, if desired.

2.5.1 Installation Requirements

You will need the items listed below to install the File Transfer Server:

(1) An IBM personal computer connected to a PLAN File Server network.

(2) Any of the modems described in the appendices of this document which are supported by the IBM personal computer.

(3) FTS product virtual volumes on your hard disk.

(4) Access to a telephone line.

The *PLAN Series IBM PC DOS Reference Manual* lists the specifications for the modem you select and describes how you can select options such as pulse or touch-tone dialing.

When the installation process is complete, the configuration will consist of an enhanced IBM personal computer with File Transfer Server capability, a modem connected to the computer and a telephone cord connecting the modem to your telephone system.

Everything that the File Transfer Server requires to operate properly will reside on a virtual volume named //SYSTEM/FTS.

2.5.2 Contents of the Distributed Virtual Volumes

You have received not one, but many different File Transfer Servers. All of them will operate on the IBM personal computer; however each supports a different type of modem. Each is distributed on a separate volume with the generic network path-name of

//PRODUCTS/FTS/X.X/IBMPC/NETWORK/<modem>

"X.X" stands for the product release number. You can find this number in the configuration document which accompanied the FTS software.

"<modem>" stands for the name of the modem which is supported by the File Transfer Server contained within the volume.

For example, the volume containing the File Transfer Server that supports the Hayes Smartmodem 1200 might be named

//PRODUCTS/FTS/1.0/IBMPC/NETWORK/SMART1200

There is one special volume which can be used to test your installed File Transfer Server. Its pathname is

//PRODUCTS/FTS/X.X/IBMPC/NETWORK/TEST

Its usage will be discussed later in the next section of this document.

All of the other, standard volumes contain the following files:

(1) "AUTOEXEC.BAT" causes the File Transfer Server to begin execution.

(2) "FTSCMD" is the command file used to test the File Transfer Server. It causes FTS to call your support organization in order to exchange some sample data files which you can later examine.

(3) "FTS.EXE" is a portion of the File Transfer Server software which is automatically used by the "FTS?????.EXE" file.

(4) "FTS?????.EXE" is the File Transfer Server code file which is specific to a particular modem. The question marks represent the remainder of the file's name which will be filled in with the name of the modem. (For example, FTSSMRT2.EXE is used for the Hayes Smartmodem 1200.)

(5) "FTSLOG" is a 50-block log file which exists as a record of the File Transfer Server's execution. It is initially blank.

2.5.3 Installation Instructions

Preparing your File Transfer Server

To prepare your File Transfer Server, follow these procedures.

(1) Boot an IBM personal computer using the Nestar-distributed main boot menu which has the network path-name of "//SYSTEM/PROFILE/MENU".

The following screen will be displayed:

```
Welcome to the Nestar main menu

Selecting an application can be as easy as pressing a function key
on your personal computer

  F1  PLAN Series (tm) features and benefits: introduction to the system

  F2  PLAN Pak (tm) II demonstration with sample work data

  F3  PLANPak II applications

  F4  Other installation-defined applications

  F5  System management: administration and maintenance of the system

  F6  Other boot options

  Esc  Exit menu

Please select
```

(2) Select the system management options by depressing the function key which is displayed directly to the left of the words "System Management".

The following screen will appear:

```
System Management Functions

 F1  Change to a different profile

 F2  Boot PC DOS library (read/write)

 F3  Boot PC p-System library (read/write)

 F4  Installation procedures

 F5  Issue network commands

 F6  Debug profiles (turn echo on)

 F7  Run the IBM PC print server

 F8  Run the IBM PC SNA 3270 gateway server

 Esc  Return to main menu

Please select
```

(3) Select "Installation Procedures" from the menu of options now displayed on screen. This will call up on the screen a list of various Nestar products you may install on your network.

```
Installation procedures for Nestar software products

F1  Print server version 2.6 PC DOS user environments

F2  Print server version 2.5 p-System user environment

F3  Print server version 2.5 IBM PC server

F4  Messenger version 2.5 PC DOS environment

F5  Messenger version 2.5 p-System environment

F6  Network File Transfer Server version 2.3 PC DOS environments

F7  SNA 3270 Gateway Server version 1.1 PC DOS environment

Esc  Return to system management menu

Please select
```

(4) Find in this list the product which closely matches the name
"Network File Transfer Server PC DOS environment" and
depress the function key which is displayed to the left of
that product name.

(5) Now select the type of modem you wish to use from the list
of modems which will appear on the screen. After you
select the appropriate modem, the installation process will
begin.

The product of the installation process is a bootable virtual
volume with the network pathname of "//SYSTEM/FTS". Con-
tained within this volume is a sample FTS command file named
"FTSCMD". This sample file will be used to test the installed
FTS by directing the FTS to call your Nestar support organiza-
tion and exchange some sample data files. The telephone
number of your support organization may require editing,
depending upon the location of your business offices. The tele-
phone number is in the "FTSCMD" file and the directive to be
edited will be in the format "SITE xxxxx IS PHONE yyyyyy;".
Do not alter the site identification represented by "xxxxx", but do
modify the telephone number "yyyyyy" as necessary.

Testing your File Transfer Server

To test your newly installed FTS, reboot your IBM personal
computer from the network volume "//SYSTEM/FTS". FTS will
begin its execution automatically, taking its directives from the
"FTSCMD" file. Please do not press any keys on the keyboard
as this would disturb the normal execution of this FTS test.
Later in this document the benefits and instructions for altering
FTS execution with keyboard interaction will be described.

As the test proceeds, you will see the contents of the
"FTSCMD" file appear on the screen as FTS reads the direc-
tives describing the functions it is to perform. When FTS fin-
ishes reading the directives, the message "---no errors
detected---" should be displayed on the screen.

The FTS will then commence executing the actions dictated by
the "FTSCMD" file. The following information should appear on
the screen:

        Doing "DEMOPROC"
        MOUNT
        /MAIN/PRODUCTS/FTS/X.X/IBMPC/NETWORK
            /TEST,Z:,RO,UPD [on one line]
        Dialing: x-xxx-xxx-xxxx
        Waiting for phone to be answered...
        Answered
        Answering version is X.X
        Opening TESTSEND
        Sending block 0
        Sending block 1
        Sending block 2
        Sending block 3
        Creating file TESTRECV
        block 0 received.
        block 1 received.
        block 2 received.
        block 3 received.

        Hanging up the phone at XX:XX:XX

Waiting to do "DEMOPROC" in 178 minutes

XX:XX:XX

If the test completes successfully, your File Transfer Server will wait for 3 hours before doing "DEMOPROC" again. You should stop it before it does this by typing the following keys in order: <Esc>, 'Q', <Return>, 'Y', <Return>. Should the test fail, the FTS will execute the "RETRY" instruction and perform "DEMOPROC" again in 5 minutes.

Verifying the Results of Your Transfer

Even if the FTS has appeared to execute properly, you should verify its performance by examining the file that was sent to your network from your Nestar support organization. To accomplish this, use the "NET" program and issue the command:

MOUNT //PRODUCTS/FTS/X.X/IBMPC/NETWORK/TEST,Z:

Exit the "NET" program and type "TYPE Z:TESTRCV". The contents of the file you just received will be displayed on your computer screen.

Modifying the FTS Command File

To direct your FTS to perform tasks other than this simple file transfer test, the command file "FTSCMD" on volume "//SYSTEM/FTS" must be modified. You are encouraged to use the original "FTSCMD" file as your template for other command files so as to avoid encountering syntax errors until your familiarity with the FTS grows.

2.6 Standalone IBM PC FTS Installation

The installation of the File Transfer Server for standalone execution on the IBM personal computer is described in the following sections.

Briefly, the installation consists of

(1) Making a backup copy of the distribution diskette.

(2) Preparing your modem for use with the FTS.

(3) Modifying the telephone number in the FTS command file as necessary so that FTS will dial properly.

(4) Testing the FTS by executing the FTS command file included on the distribution diskette.

(5) Modifying the FTS commands to conform to your needs.

2.6.1 Installation Requirements

To install the File Transfer Server, you will need

(1) An IBM personal computer equipped with at least 192K of memory and at least one 5.25" floppy disk drive

(2) One of the IBM personal computer compatible modems that are supported by the FTS

(3) The FTS distribution package which consists of a 5.25" diskette labelled according to the modem that you have

(4) A blank, formatted 5.25" floppy diskette

(5) Access to an ordinary telephone line

After installation, you will have

(1) an enhanced IBM personal computer with stand-alone File Transfer Server capability

(2) a modem connected to the computer

(3) a telephone cord connecting the modem to your telephone system.

2.6.2 Contents of the Distribution Diskette

The stand-alone File Transfer Server is shipped on one 5.25" floppy diskette. You will need to boot DOS brom another diskette, and then execute FTS from the distribution diskette.

The following files are contained on the floppy diskette:

(4) "AUTOEXEC.BAT" causes the stand-alone File Transfer Server to begin execution.

(5) "FTSCMD" is the command file used to test the File Transfer Server. It causes FTS to call your support organization in order to exchange some sample data files which you can later examine. See "TESTSEND" below.

(6) "FTS.EXE" is a portion of the File Transfer Server software which is automatically used by the "FTS?????.EXE" file.

(7) "FTS?????.EXE" is the File Transfer Server code file which is specific to your type of modem. The question marks represent the remainder of the file's name which will be filled in with the name of the modem. (For example, "FTSSMRT2.EXE" is used for the Hayes Smartmodem 1200).

(8) "FTSLOG" is a 50-sector log file which exists as a record of the File Transfer Server's execution. It is initially blank.

(9) "TESTSEND" is a sample file containing textual information. This file is sent to your Nestar support organization when you test your installed stand-alone File.Transfer Server.

2.6.3 Installation Instructions

Making a Copy of the FTS Disk

Before attempting to use the stand-alone FTS, you should make a copy of the distribution diskette.

(1) Place the distribution diskette in floppy drive A: and your blank, formatted diskette in floppy drive B:.

(2) Enter the command "DISKCOPY A: B:" to duplicate the contents of the distribution diskette. Should you have only one floppy disk drive, you can still perform this operation. The computer will inform you when it needs you to place a different floppy diskette in the drive.

(3) Store the distribution diskette in a safe place and use the duplicate diskette for all subsequent operations with the File Transfer Server.

Testing the FTS

Contained on the diskette is a sample FTS command file named "FTSCMD". This sample file will be used to test the installed FTS by directing the FTS to call your Nestar support organization and exchange some sample data files. The telephone number of your support organization may require editing, depending upon the location of your business offices. The telephone number is in the "FTSCMD" file and the directive to be edited will be in the format "SITE xxxxx IS PHONE yyyyyyy;". Do not alter the site identification represented by "xxxxx", but do modify the telephone number "yyyyyyy" as necessary.

To test your stand-alone FTS, log in to the disk drive containing

the FTS floppy diskette and type "AUTOEXEC". FTS will then execute, taking its directives from the "FTSCMD" file. (Please do not press any keys on the keyboard as this would disturb the normal execution of this FTS test.) Later in this document, the benefits and instructions for altering FTS execution with keyboard interaction will be described.

As the test proceeds, you will see the contents of the "FTSCMD" file appear on the screen as FTS reads the directives describing the functions it is to perform. When FTS finishes reading the directives, the message "---no errors detected---" should be displayed on the screen.

The FTS will then commence executing the actions dictated by the "FTSCMD" file. The following information should appear on the screen:

    Doing "DEMOPROC"
    MOUNT
    /MAIN/PRODUCTS/FTS/X.X/IBMPC/NETWORK
        /TEST,Z:,RO,UPD [typed on one line]
    Dialing: x-xxx-xxx-xxxx
    Waiting for phone to be answered...
    Answered
    Answering version is X.X
    Opening A:TESTSEND
    Sending block 0
    Sending block 1
    Sending block 2
    Sending block 3
    Creating file A:TESTRECV
    block 0 received.
    block 1 received.
    block 2 received.
    block 3 received.

    Hanging up the phone at XX:XX:XX

    Waiting to do "DEMOPROC" in 178 minutes

    XX:XX:XX

If the test completes successfully, your File Transfer Server will wait for 3 hours before doing "DEMOPROC" again. You should stop it before it does this by typing the following keys in order: <Esc>, 'Q', <Return>, 'Y', <Return>. Should the test fail, the FTS will execute the "RETRY" instruction and perform "DEMOPROC" again in 5 minutes.

Verifying the Results of Your Transfer

Even if the FTS has appeared to execute properly, you should verify its performance by examining the file that was sent to your station from your Nestar support organization. To do this, type the command "TYPE A:TESTRCV". The contents of the file you just received will be displayed on your computer screen.

Modifying the FTSCMD Command File

To direct your FTS to perform tasks other than this simple file transfer test, the command file "FTSCMD" on the diskette must be modified. You are encouraged to use the original "FTSCMD" file as your template for other command files so as to avoid encountering syntax errors until you are thoroughly familiar with the FTS.

Chapter 3

How FTS Works

FTS is designed to be fully automatic. From power up to power down, a dedicated FTS station can perform a variety of tasks at specific intervals, and repeat these tasks day after day without operator intervention. Of course, variations from this automatic operation are also possible. Operators can interrupt FTS and issue commands directly from the keyboard, or hand schedule a previously defined task. Your installation may want to use one computer for a number of different duties, with FTS only running part of the time. Below we explain how FTS runs automatically, and how you can intervene when necessary.

If under excessively heavy use, the FTS may display this (or a similar) message:

> "Some other station on the network is using the file server extensively. The last request made to the file server from the file transfer server was lost. The operation will be retried."

After this is displayed, the FTS should resume its normal operation. If not, reboot your FTS station. If rebooting does not work, contact Nestar's Technical Support.

3.1 Automatic Startup of FTS

If your FTS station is an Apple /// connected to a network, or a standalone Apple //, Apple ///, or IBM PC computer, insert and boot from the distributed 5.25" File Transfer Server floppy diskette.

If your FTS station is an Apple //, or an IBM PC computer connected to a network, //SYSTEM/PROFILE/$nn, (its profile record, wherein nn is stn address), can be configured so that the virtual volume containing FTS is booted automatically upon system power-up.

If the STARTCMD.TEXT (for Apple //) or AUTOEXEC.BAT (for IBM PC) files, which are supplied with the FTS package, are on this virtual boot volume, the FTS program is executed automatically.

If your Apple // or IBM PC are not dedicated full time to FTS functions, the station's profile record can be configured accordingly. Consult the *PLAN File Server Apple // Pascal User's Guide* or the *PLAN Series IBM Personal Computer DOS Reference Manual.*

Once FTS is running, its operation is essentially the same in all environments, regardless of the type of computer it is running on. The differences will be pointed out when necessary.

3.2 FTS Prepares to Use the Log and Command Files

A note about file names: In the Apple environments, file names for "text" files (FTSCMD, DEFAULTS, FTSLOG, etc.) include the suffix ".TEXT". In the IBM PC environment, there is no suffix. Thus, the FTSLOG file name is FTSLOG.TEXT for Apple // and Apple ///, and FTSLOG for IBM PC.

When the FTS software is executed, it looks in the DEFAULTS file (on the prefix volume) for the names of the FTS command and log files that you want it to use. The FTS command file feeds instructions to FTS, and the log file is used by FTS to keep a log of its significant activities. Placing names for the log and command files in DEFAULTS is optional. FTS will use its defaults for these file names (FTSLOG and FTSCMD) if it does not find them listed in a DEFAULTS file.

The format of this DEFAULTS file is as follows:

> FTS: CMD filename
> FTS: LOG filename

NOTE: If your FTS program is running on a network, the DEFAULTS file may contain instructions for other network applications. This is why the FTS command file and log file names

are preceded by "FTS".

In Apple stations running FTS, if your DEFAULTS file contains filenames without ".TEXT" at the end, FTS will append the ".TEXT" and look on the prefix volume for a file by that name. If your DEFAULTS.TEXT log and command file names end with a ".", FTS will look for a file with exactly that name without appending the ".TEXT".

If you prefer to direct FTS to a different volume for its log or command files, you can do so by providing the correct SOS device name, Pascal unit number, or PC DOS pathname. Remember that your "prefix volume" is the one that you booted from, unless you change the prefix in the operating system.

> FTS: CMD #5:filename (for Apple //)
> FTS: LOG .d2/filename (for Apple ///)
> FTS: LOG B:PATHNAME/filename (for IBM PC)

The FTS boot disk or volume, which you created following the instructions in Chapter 2, already contains a 50-Block log file called FTSLOG. You can rename this file, or delete it and make it larger. If you want to use a log file that is not called FTSLOG, remember to place its name in the DEFAULTS file.

If FTS finds no log file, it will create one that is 20 Blocks in size and will give it the name FTSLOG, unless you have specified a name in the DEFAULTS file.

After FTS has found or created its log file, the following display appears:

> Press the space bar to change
> command file from Ftscmd (or your filename)
> FTS will autostart in 10 seconds...

FTS is showing you the name of the command file that it will expect to find. When the countdown completes, FTS will run that command file, provided it finds it on the boot or prefix volume. If FTS cannot find a command file with the name being displayed, the following message appears:

No command file name, (command file name)
Enter command file name
or RETURN for keyboard
File?

You can enter a different command file name at this point. This command file can be located on the boot (prefix) volume, or on any currently mounted volume (be sure to include device or unit number if on a volume other than the boot, prefix, or default volume).

The fact that FTS can use one of several command files is useful when you want FTS to complete the instructions in one command file, terminate, and automatically re-execute using a different command file. We explain this in more detail in Section 3.6 below and give examples in Chapter 4.

3.3 Giving FTS Commands from the Keyboard

When FTS is displaying the countdown and the name of the command file it will be using, you can strike the space bar to interrupt the countdown. Then after the "File?" prompt, you can enter a <Return> to tell FTS that you want to enter commands directly from the keyboard.

The following display appears:

Enter commands from keyboard
Terminate with 'Quit';
?

In Chapter 4, we explain how to build command files using the editor. Normally that will be the method you will use to issue commands to FTS.

However, all of the same commands that can be fed to FTS through a command file can be typed in while it is in this keyboard mode. The difference is that your commands will not be saved once FTS is aborted. Also, you cannot return to a command line to make a deletion or correction once you have typed

a <Return>. The keyboard mode is convenient for an unusual task that you don't expect to need again and that is simple to type in because it involves few command lines.

3.4 How FTS Processes Commands

When FTS has found its command file, or received a series of direct keyboard commands, it reads and validates the commands and internally stores the information they contain. As it is reading in (compiling) the commands, FTS displays them. If the syntax is correct, FTS displays the "No Errors Detected" message. If errors are detected, FTS displays the errors as it finds them and then asks if you want it to continue reading in more commands or abort. It is convenient to have FTS continue to read in the commands after it has found an error, because it will find all your errors in one compilation. Then, after it aborts due to the errors, you can fix them and run it again.

Once FTS has displayed the "No Errors Detected" message, it is ready to begin doing its tasks. When a command file has been read in without errors, you might want to implement the "NOLIST" option that prevents the commands from being displayed on the screen when FTS first runs the command file. This option is useful when command lines contain passwords that should not be viewed by individuals who might be in the FTS station area. Chapter 4 explains, in detail, how to use this option.

After it has read and verified all of the commands, FTS begins doing "globals." Globals are tasks that FTS does without delay as soon as it has verified the contents of the command file. For example, a command file might contain three commands that request FTS to send the same file to three different locations. FTS will display the "Doing Globals" message and complete these tasks right away, stopping only when it has completed them.

It might, on the other hand, be preferable to have FTS transfer an updated version of a file to three locations, everyday, without operator intervention. If you want FTS to do a task at a

particular time, or repeatedly at regular intervals, you can enclose commands in a procedure and provide a schedule that FTS will use to do that procedure.

3.5 How FTS Uses the Clock/Calendar Card

While FTS is running, it can use the services of the clock/calendar device to perform procedures at specified times. Network versions of FTS use the clock/calendar device that is part of the file server. The standalone Apple // uses its own internal clock/calendar card. The standalone Apple /// has no clock/calender card. Therefore, a standalone Apple /// FTS can only perform global tasks or hand scheduled procedures. The IBM PC uses its own built-in clock/calendar.

While it waits for the appropriate time to perform its procedure, FTS checks for incoming phone calls and for the <Esc> key to be pressed at the FTS station console.

The operator can press the <Esc> key if he or she wants to hand schedule a procedure that is in the command file. Pressing the <Esc> key while FTS is waiting results in a menu display. From this menu the operator can select the hand scheduling option.

In Chapter 4 we provide complete details about globals and the scheduling of procedures.

3.6 How FTS Uses Multiple Command Files

It is possible that the command file you create cannot be read in and validated by FTS because it requires more memory than is available in your FTS station. If this is the case, FTS displays the "STACK OVERFLOW" error message and terminates. To correct this situation, you can create multiple command files and use the "SET CHAIN" (Apple) feature, or a .BAT file (IBM PC), both described in detail in Chapter 4. By dividing your commands into multiple command files, and chaining from one file to the next, you can prevent the "Stack Overflow" error.

Remember that this error only occurs with very long command files that occupy more memory than is available.

3.7 How FTS Updates Its Log File

When FTS performs a significant task, it keeps a record of that task in the log file. You can check this log file to see what FTS has done, or to find out why FTS has not been able to complete a task. Since this log file is a fixed length, FTS places <<<END>>> after the last entry for the last session. It writes records circularly so that when the end of the file is reached, it starts at the beginning of the file and writes over the previously logged information.

When you are reading over this log, you can look for the <<<END>>> and for the date and time stamps at the beginning of each entry, to help you find the entry you are looking for.

Chapter 4

Creating FTS Command Files

4.1 Keywords and Command Lines

FTS command files contain keywords, pathnames, and other values that are arranged in command lines.

FTS understands the following keywords:

ALWAYS	FOR...TIMES	REPLACE
AT	HOUR(S)	RETRY IN
BEGIN	ID	SEND
CONNECT TO SITE	IS PHONE	SET CHAIN*
DEFINE ... AS	LIST	SITE
DELETE	MINUTE(S)	SLOT*
DIR	MYSITE	STN
DO	NET	TO
END	NOLIST	USES
EVERY	NOLOG	VOL
EXIT	PASSWORD	
FILE	RECEIVE	

*Apple only; ignored in the IBM PC environment.

Some of these keywords (SEND, RECEIVE, and BEGIN, for example) are found at the beginning of command lines. Other keywords have meaning within command lines. Some are only found in conjunction with each other (e.g., DEFINE ... AS, RETRY IN). We refer to a particular type of command line with the keyword that is found at the beginning, i.e., the "SEND" command line or the "CONNECT TO" command line.

As you learn how to use these keywords, you will find that their meanings are fairly obvious and that the syntax rules for creating command lines are easy to remember.

The following sections explain the use of FTS keywords in

combination with other command line components. They are organized as follows:

Section 4.2 introduces basic FTS syntax requirements by explaining how to issue commands for local transfer of virtual volumes, files, and directories on the network. Standalone and network FTS operators should read these sections, since they present fundamental concepts that are true for all versions of FTS.

Section 4.3 introduces the special commands and keywords that FTS requires in order to complete remote transfers.

Section 4.4 explains how to create and schedule FTS command file procedures for both local and remote transfers. Commands can be enclosed in procedures when FTS is to perform them at a particular time every day or at specific intervals several times a day.

Section 4.5 covers the use of file server commands in a command file for both local and remote transfers. These commands are used for setting default pathnames and passwords.

Section 4.6 explains the use of macro definitions, which allow you to assign a name to a long string of characters that FTS understands.

Section 4.7 explains how standalone FTS command files must differ from network command files.

Section 4.8 describes the hand scheduling option.

Section 4.9 provides longer sample command files.

Our discussion incorporates the following conventions:

• Keywords are introduced gradually. Examples and discussions introducing new keywords are preceded by those keywords.

- When we provide syntax models, square brackets [] enclose optional components, curly brackets {} enclose two or more keywords where exactly one is selected for a particular instance.

- In examples of command lines, keywords appear in upper case and pathnames and other user supplied values appear in lower case.

Once you understand the correct syntax of the possible command lines and the purpose of each of the keywords, you can refer to the "Quick Reference Guide" in Appendix A for a summary of syntax rules.

4.2 Network FTS Commands for Local Transfers

Networks can have one or more file servers, and file servers can manage one or more disks. Some networks can be connected to other networks. A network FTS station can be used to transfer data between any of the file servers on any of the networks to which it is connected, as well as transferring data on the same file server (on a hard disk or between hard disks). When FTS is transferring data to its own or connected networks, it is performing a local transfer. The following subsection tells you how to give FTS local transfer instructions.

4.2.1 Syntax and Examples for Local Transfers

SEND, TO

These keywords are used in the SEND command line. Its basic syntax is

SEND object TO object;

SEND is a keyword that tells FTS that the subsequent object is to be transferred.

TO is a keyword that tells FTS that the subsequent object is to be the destination of the data being transferred.

Note that the SEND, TO command involves the use of CREATE, MOUNT, COPY, etc., and appropriate access rights **(rwecd)** must be provided for each of the commands to work.

Be sure to unmount all volumes needed for transfers and check the size of available memory before SENDing.

VOL, DIR, FILE

These keywords appear in object specifications. The basic syntax of object specifications is

    {DIR|VOL} pathname, [SLOT n] [STN n]
    [FILE filename]

Each object specification must have a pathname that specifies a directory or a volume. The DIR or VOL keyword must precede this pathname to indicate which is the case. For example,

    SEND VOL /main/sales/jim/leads, TO VOL
    /main/sales/alleads;

In this example, the entire contents of the volume called /main/sales/jim/leads are being sent to a directory called /main/sales and placed in a volume that FTS will create and name "alleads".

Note that the command lines in our examples occupy more than one line. If a command line is too large to be typed on one screen line, it can occupy two or more command lines. Also note that pathnames must be terminated with commas, <Return>s, or semicolons.

Example:

> SEND DIR /main/sales/jim/leads
> TO DIR /main/sales/jane;

As the DIR keyword indicates, a directory and the entire subtree that resides beneath it are being transferred.

All of the branching subdirectories and volumes will be created under the specified destination directory. The destination directory can be an already existing one, or it can be created by FTS. In either case, the syntax is the same.

Example:

> SEND VOL /main/users/jeff/leads
> FILE march.text
> TO VOL /main/users/jane/leads
> FILE jeffmarch.text;

A file called "march.text" is being transferred from one volume to another on the same hard disk. FTS creates a new file in an existing destination volume and gives the specified destination file name.

Again, the VOL keyword tells FTS that the pathname specifies a volume. When a file is being transferred, the source and object specifications must contain pathnames that specify volumes and that are preceded by VOL.

In the Apple environments, the entire file name, including its suffix, must be specified exactly as it appears in the directory listing.

Example (Apple):

    SEND VOL main/users/jeff/leads
    FILE march.text
    TO VOL storage/sales/leads
    FILE march.text;

Here, the source object is on a disk called /main and the destination object is on a disk called /storage.

A file name in the IBM PC environment can be any allowable DOS file name. This includes the use of pathnames and ambiguous file names that contain global file name characters. See the *PLAN Series IBM Personal Computer DOS Reference Manual* chapter entitled "Using Global Filename Characters" for more information about ambiguous file names.

Example (IBM PC):

    SEND VOL /main/admin/report, FILE march.text
    TO VOL /main/sales/report, FILE admin.text
    TO VOL /main/r+d/report, FILE admin.text
    TO VOL /main/fin/report, FILE admin.text;

or

    SEND VOL /main/admin/report,FILE reports.*
    TO VOL /main/admin/backup/reports.*

Here, there are multiple destination objects. Any number of destination objects is allowed in the SEND command line that requests a local transfer.

Note that if FTS creates the destination volume but is unable to successfully transfer all the data to it, it will attempt to delete the destination volume. (Unsuccessful and aborted transfers may be caused by, for example, a bad phone connection or disk I/O errors.)

If FTS can't delete the volume, the operator should delete it manually from the file server console or by using the NET

program. FTS may fail to delete the volume if, for example, the password that it knows allows create access, but not delete access, for the volume, or erase access for the volume's directory.

STN

This keyword is used when a file server other than the default file server is being specified.

It is a part of the object and requires an address value:

STN nn   (where nn is the station address--specified in
         either decimal or hexadecimal)

Example:

SEND VOL /main/sales/jim/leads
FILE march.text TO VOL
/main/admin/leads, STN $FD FILE jim.text;

Here, a file is being transferred between two file servers on one network. The source object is located on the default file server's associated disk, and the destination object is located on a disk associated with a file server that has an address of $FD. The default file server is established at boot up. Objects need not include the file server address unless it is different from the default.

SLOT

This keyword (used only in Apple environments) is used to precede the slot specification, when the object is located on a file server on a different, but connected, network.

SLOT is a part of the object specification. It requires a slot number:

SLOT n

Example:

    SEND VOL /main/sales,jim/report, SLOT 4
    STN $C0 TO VOL /admin,report/jim
    SLOT 5, STN $FD;

Here, neither the source nor the destination object is located on the default file server's disk. Therefore, both require file server address specification. The slot numbers are also specified because both objects are located on networks other than the default network. In order for FTS to service multiple networks, it must have Network Interface Cards for them. The slot number provided in the object directs FTS to the appropriate network.

NOTE: The IBM PC supports only one network, so the SLOT keyword is not needed. It is ignored.

DELETE, REPLACE

These keywords are used when the source object is to be deleted after a successful transfer, and when the destination object already exists but is to be replaced by the object being transferred.

Example:

    SEND VOL /buildinga/users/hal, DELETE
    TO VOL /buildinga/admin/reports, REPLACE;

Here, a volume is being transferred to a different directory on the same file server disk. If a volume called "reports" exists under the directory /buildinga/admin, it will be replaced by the source volume.

NOTE: If FTS does not have appropriate access rights to delete a specific volume, it will be unable to do so. This will occur if a particular volume is protected with restricted access rights and with a password other than the password that is known to FTS via the line NET SET PRVPW in the FTSCMD file. The operator must then manually delete the volume (using the file server

console or NET program).

PASSWORD, LIST, NOLIST

These keywords work together to protect the FTS console.

Example:

```
NOLIST;
PASSWORD topsecret;
LIST;
SEND VOL /main/users/hal, FILE targets.text
TO VOL /main/users/ricardo, FILE leads.text;
```

Here, the password protecting the FTS console is "topsecret". The operator can interrupt the normal operation of FTS by typing <Esc> at the console, and selecting the "scheduling" option from the resulting menu. If the console is protected with a password, the operator is prompted to enter the password before the menu is displayed.

In the above example, the NOLIST and LIST command lines are placed before and after the PASSWORD command line. This prevents FTS from displaying the password during the initial compilation.

Example:

```
NOLIST;
SEND DIR /main/finance/salaries:gold
TO /alt/finance/salaries:gold;
LIST;
```

Here, NOLIST again prevents a command line from being displayed on the FTS console during initial compilation. This is useful because the pathnames in the command line contain secret passwords.

4.2.2 Summary of Syntax Rules for Local Transfers

† All command lines must be terminated with a semicolon.

† If a command line is longer than one screen line, it can be entered on two or more screen lines.

† A pathname must be terminated by a comma unless it is immediately followed by a <Return> or a semicolon.

† If the source object is a file, the destination object must be a file. The destination object must specify a virtual volume that already exists and provide a file name that FTS will give to the newly created file.

† If the source object is an entire volume, the destination object must also be a volume. The destination object specification provides the name and directory location to be given to the newly created volume.

† If the source object is a directory, the destination object is a directory. The branching subtree of the source directory will be placed in the directory named in the destination specification. The directory named in the destination specification may already exist, or it can be created by FTS.

† If a file, volume, or directory already exists and is also specified as the destination object, the transfer will not occur unless the REPLACE keyword is present.

† If an object contains no STN or SLOT keywords and their associated values, FTS assumes that the default file server on the default network is to be used. The default file server is established at the time of FTS startup. You can view the slot number and station address of the default file server by using the NET program's SHOW command.

4.3 Network FTS Commands for Remote Transfers

Successful transfer of data over phone lines requires two FTS stations, two modems, and a coordinated effort by the operators. The operators agree on site names, object ID names and modem modes, and create command files accordingly.

The following subsection introduces new keywords and syntax requirements that you need to know in order to create command files for remote transfers. **See Section 4.2.1 for the basic syntax for FTS Commands.**

Objects are specified in the same way for remote transfers as for local transfers, but there is an important difference in their placement. The source object specification is placed in the sending FTS command file's SEND command line, and the destination object is placed in the receiving FTS command file's RECEIVE command line. One FTS command file must have a SEND command line that contains an ID. The other FTS command file must have a RECEIVE command line that contains a matching ID.

4.3.1 Additional Syntax Requirements for Remote Transfers

MYSITE, SITE, USES, IS PHONE, CONNECT TO SITE, ALWAYS, RECEIVE, ID, RETRY IN, FOR...TIMES

These keywords are used to provide FTS with the instructions it needs to connect to a remote site.

Note the proper syntax for them:

MYSITE sitename [USES <USES string>];

SITE sitename [IS PHONE number] [USES<USES string>];

BEGIN taskname [NOLOG] [EXIT];

CONNECT TO SITE sitename [ALWAYS];

RECEIVE ID idname TO object [REPLACE];

The RETRY clause can be added to the AT and EVERY command lines. It can take the following forms:

[RETRY IN n HOUR(S)[FOR n TIMES]];

or

[RETRY IN n MINUTE(S)[FOR n TIMES]];

Below are sample command files that might be created by three different FTS operators, one in the home office and two in different branch offices. These command files contain the keywords introduced above. Read over the command files briefly, noting the syntax of the SEND and RECEIVE command lines which have compatible IDs. A complete explanation of the new keywords follows the command files. Then we include a summary of the activity that would result if these FTS command files were run on three FTS stations.

Note that all three FTS stations in the following examples are running on networks. Samples of standalone FTS command files are included in Sections 4.7 and 4.9.

The home office's command file:

```
MYSITE home USES 1200;
SITE branch1 IS PHONE 123-4567 USES 300;
SITE branch2 IS PHONE (213) 522-3333 USES 1200;

BEGIN createupdate;
SEND /main/users/bill/reports, FILE daily.text
TO /main/users/reports, FILE daily.text, REPLACE;
END;

BEGIN callbranch1;
CONNECT TO SITE branch1 ALWAYS;
SEND VOL /main/users/reports, FILE daily.text ID update;
END;

BEGIN callbranch2;
CONNECT TO SITE branch2;
SEND VOL /main/users/reports, FILE daily.text ID update;
END;

RECEIVE ID april
TO VOL /main/account/expense/jim, REPLACE;

RECEIVE ID payroll
TO VOL /main/finance, REPLACE;

AT 0100 DO createupdate;

AT 0300 DO callbranch1
RETRY IN 10 MINUTES FOR 5 TIMES;

AT 0400 DO callbranch2
RETRY IN 10 MINUTES FOR 5 TIMES;
```

Branch 1's command file:

```
MYSITE branch1 USES 300;
SITE home;
SITE branch2;
```

```
RECEIVE ID update
TO VOL /main/home/reports, FILE daily.text, REPLACE;

BEGIN answerhome;
CONNECT TO SITE home;
SEND VOL /main/expense/Jim, ID april;
END;
```

Branch 2's command file:

```
MYSITE branch2 USES 1200;
SITE home;
SITE branch1;

RECEIVE ID update
TO VOL /main/home/reports, FILE daily.text, REPLACE;

BEGIN answerhome;
CONNECT TO SITE HOME;
SEND VOL /main/users/lynne, ID payroll;
END;
```

These sample command files contain all of the (additional) FTS keywords necessay for remote transfers.

The MYSITE and SITE command lines establish names for the local and remote sites. Optionally, the SITE command line can contain the IS PHONE clause. Sites that are originating remote connections need to know the phone numbers of stations they are to call. In this example, the home office (home) originates calls to two of its branch offices (branch1 and branch2). Therefore the command file at the home office contains phone numbers for these branches.

NOTE: FTS understands phone numbers entered in any of the following ways:

```
(123)456-7891
123 456 7891
123-456-7891
```

A period can be placed between any of the numbers to cause a 1-second pause. This is useful for placing calls through a PBX board, which requires that 9 be dialed to obtain an outside line.

    9..123-456-7891

When a procedure that involves making a phone call is scheduled, the necessary phone number needs to be provided on the SITE command line. Otherwise, FTS will attempt to dial a null phone number.

Such a phone call will be unsuccessful, with FTS thinking that the destination site did not answer.

The optional USES clause in the SITE command line tells FTS what mode its modem should use for calling a particular FTS station. The optional USES clause in the MYSITE command line tells FTS what mode its modem should use when answering an incoming call.

In this example, "home" will use 300 when it calls "branch1" and 1200 when it calls "branch2". The branch offices receive data and they send data. The modem mode is established by the caller and is not changed during one call. If, however, the command file were configured so that the branch offices originated calls to the home office, their command files would require the home office phone number as well as the appropriate USES clause. The operators at the branches and the home office would have to coordinate their USES clause values. Whereas home can switch to 1200 when it calls a site with a 1200 in its USES clause, it must always receive calls in the 300 mode if that is the value in the MYSITE command line. Therefore, the command files of the branch offices must have 300 in their SITE home USES clause.

The appendices of this manual explain the USES clauses that are appropriate for supported modems. In many cases, no USES clause is required because no mode changes need to be made for successful connection to occur.

When a procedure involves a remote transfer, the CONNECT

TO SITE command line must be the first command line in the body of the procedure. Whether FTS is originating or answering a call, it requires the CONNECT TO SITE command line to associate a procedure with a particular site.

The ALWAYS keyword is an optional component of the CON-NECT TO command line when FTS is to originate the call. It tells FTS to originate the call even if it can't find the object it is to send.

If the ALWAYS keyword is not present, FTS will not connect to the remote location if the source object is not present.

The home office command file contains one local and two remote procedures. Note the difference in syntax between remote and local procedures. The remote procedure does not specify a destination object, but it does contain ID idname.

The specification of the destination object is contained in a RECEIVE command. A RECEIVE command must exist in the command file of the receiving FTS, and it must contain an ID that matches the one in the SEND command, as well as an object specification that is compatible with that of the source object.

Note that the syntax for object specification is exactly the same as for local transfers. But, the destination object is specified in the receiving FTS command file as part of the RECEIVE com-mand line. The RECEIVE command line is never enclosed in a procedure. It cannot be scheduled, since it is only acted upon when a remote FTS sends an object with a corresponding ID.

The RETRY keyword in the AT command line tells FTS to try again if the phone connection is not made. Note that in this case, FTS is being told to retry in 10 minutes, and again in 10 more minutes. After five retries, FTS is told to give up. RETRY is useful if the remote FTS does not happen to be operational at the time of the first call. RETRY IN n HOUR(s) is also allowed.

4.3.2 A Reminder

When constructing command files that are to be used for remote transfers, it is important to keep in mind the fundamental requirements of FTS for object specification.

- Pathnames can specify volumes or directories. Therefore, they must be preceded by the VOL or DIR keyword.

- If the SEND command line pathname specifies a volume, so must the RECEIVE command line.

- If the SEND command line specifies a DIR, so must the RECEIVE command line.

- If the SEND command line includes the FILE keyword, so must the RECEIVE command line.

Section 4.2 explains the VOL to VOL, DIR to DIR, FILE to FILE requirement in greater detail.

4.3.3 Summary of Sample Command File Activities

The above sample command files describe the following events:

At 1:00 every morning, daily.text is moved from one location to another on the home office's disk.

At 3:00 every morning, the home office initiates a remote connection in accordance with its AT command line for the callbranch1 procedure. In order to initiate the connection, home checks the branch1 IS PHONE and USES clauses for a phone number and appropriate modem mode.

HOME calls branch1 using the 300 mode. Then, it transfers an object with the ID "update". Branch1 has a RECEIVE command with the ID "update", and a compatible destination specification. The transfer is made.

Then branch1 checks to see if it has a CONNECT TO SITE home command. It does. Branch1 sends an object with the ID "april" to home. Home has a RECEIVE command line with the ID "april". The object specifications are compatible, so the transfer is made. The communication is terminated.

At 4:00 every morning, home dials branch2, changing its modem mode to 1200 due to branch2's USES clause. Home sends ID "update". Branch2 receives it. Branch2 checks for a CONNECT TO SITE home command, finds one and sends the object associated with ID "payroll." The communication is terminated.

4.3.4 More about RECEIVE Command Lines

In Chapter 3 we explained that FTS can do "globals" without delay. We explained that a global command is one that is not contained within a procedure. Although a RECEIVE command is never enclosed in a procedure, it is not a "global." It cannot be executed without delay, since its execution depends upon another FTS station sending data with a compatible ID A command file with a RECEIVE command will cause FTS to continue running.

The following example shows how a dummy RECEIVE command line is placed in a command file to keep FTS running while it awaits calls from the home office. Each time it receives the call from the home office it does its unscheduled procedure:

The home office command file is

    MYSITE home;
    SITE branch1 IS PHONE 123-4567;

    BEGIN branch1;
    CONNECT TO branch1;
    END;
    RECEIVE ID mail TO DIR /main/users/newmail;

    AT 0500 DO branch1, RETRY IN 1 HOUR;

The branch office command file is

    MYSITE branch1
    SITE home;

    BEGIN sendhome;
    CONNECT TO home;
    SEND DIR /main/users/home/newmail, ID mail;
    END;

    RECEIVE ID dummy TO VOL /main/users/zip;

Since the branch office is only to receive calls, it has no schedule command. However, the dummy RECEIVE command line is used to prevent FTS from aborting.

This tactic can also be used when several procedures are placed in a command file and are to be hand scheduled later.

4.4 Syntax for Creating and Scheduling Procedures (Local and Remote)

If FTS is supplied with a SEND command that is not part of a procedure, it will attempt to accomplish the requested transfer without delay. Once it has finished the transfer, it will cease running (screen says "abort") unless there are more SEND commands for it to execute.

If the SEND command is enclosed in a procedure, it will not be executed until it is scheduled. When FTS is given a procedure, it looks for instructions from the command file or the console that tell it when that procedure should be executed. In this section we explain how to create procedures and how to provide scheduling commands for them. In Section 4.8 we explain how to hand schedule procedures.

BEGIN, END, EVERY, HOURS, MINUTES, DO

Procedures are contained between the BEGIN and END command lines.

BEGIN taskname;

... body of task ...

END;

The keyword EVERY begins a command line that tells FTS when to do a named procedure. HOURS and DO are keywords found in the EVERY command line.

The BEGIN and EVERY command lines can take the following forms:

BEGIN taskname [NOLOG] [EXIT];
EVERY n HOUR(S) DO task1[,task2, task3];
EVERY n MINUTE(S) DO task1[, task2, task3];

The following example shows the use of the BEGIN, EVERY, HOURS, and DO keywords. NOLOG and EXIT are explained in subsequent examples. (The EVERY command line can also contain the RETRY clause that is useful for remote transfers. See Section 4.3.)

```
BEGIN task1;
SEND VOL /main/sales/newreq/detroit
TO VOL /main/sales/Hal/req;
END;
```

```
EVERY 24 HOURS DO task1;
```

BEGIN is followed by the name you wish to give to the procedure. In this case the name is TASK1. Each procedure is preceded by the BEGIN command line. Each procedure is followed by the END command line.

Note that semicolons follow the BEGIN and END command lines as well as the SEND command line contained within the procedure.

EVERY, HOURS, and DO mean just what they say. They tell FTS to do the procedure at regular intervals of your choice. Note that TASK1 must be provided at the end of this schedule command line so that FTS knows which task you are referring to. One command file can have many procedures and can have schedule commands for each of them.

Example:

```
BEGIN TASK1;
SEND DIR /main/users/joe/newmail, Slot 4, STN $FD
TO DIR /main/users/joe/newmail, SLOT 6, STN $FE;
END;
```

```
EVERY 2 HOURS DO TASK1;
```

Some applications, the Messenger electronic mail package for instance, can be greatly enhanced if FTS services are used to transfer objects from one location to another on one network or between connected networks. This service becomes especially valuable if commands can be repeated at regular intervals without operator intervention. If a network FTS received the above command file, it would perform the transfer every two hours. This means that mail that is directed to Joe from users of a connected, but different, network can be temporarily stored on

that different network and then transferred automatically by FTS to Joe's own network at regular intervals.

AT

This keyword is found at the beginning of another type of scheduling command line.

Examples:

    AT 0900 DO newday;

    AT 0900,0915,1345 DO task1, task2, task3;

The AT command specifies that a procedure or group of procedures is to be done at a particular time or times during the 24 hour day. Note that the specification of the time is in hours and minutes (hhmm).

NOLOG

Place this keyword in the BEGIN command line when you don't want FTS to make log entries each time it completes the activities within a procedure.

Example:

    BEGIN task1 NOLOG;
    SEND DIR /main/sales/leads/new, DELETE
    TO DIR /main/users/gina/leads, REPLACE;
    END;

    EVERY 4 HOURS DO task1;

Here, FTS is being instructed not to bother logging the activities in this procedure. When procedures are done frequently, the log entries for their contained activities will quickly fill the log file, making other, less frequent, entries harder to locate.

EXIT, SET CHAIN

These keywords (used only in Apple environment) can be used in a procedure to tell FTS to terminate its operation after completion of the procedure, and to chain to a specified program.

The EXIT keyword is placed in the BEGIN command line.

The SET CHAIN command line (Apple only) is placed before the END command line and takes the following form:

SET CHAIN programname [(parameter)];

Example:

    BEGIN task1 EXIT;
    SEND VOL /main/admin/report, FILE march
    TO VOL /main/sales/report, FILE admin REPLACE;

    SET CHAIN fts2nmicro (Ftscmd2.text);
    END;

    AT 0330 DO task1;

In the above example, the BEGIN command line contains the keyword EXIT. FTS knows to do the activities in the procedure and then to check the SET CHAIN command line for the program it is to chain to. When the named program is FTS, as is the case here, the name of the command file that FTS is to use when it starts up again is contained within parenthesis. Having FTS terminate and start up again using a different command file is useful when the commands in one command file cannot fit in memory for processing. (See Section 3.6.)

Chaining from FTS to FTS is also useful for remote transfers, as we explain below.

4.5 NET (File Server Commands)

FTS accepts file server commands in its command files. These commands are useful for setting default passwords and default directories. You will find that employing these commands makes your command files shorter and easier to read.

NET

File server commands outside of procedures are executed once after compilation. Those inside of a procedure are executed whenever a procedure is scheduled, and they remain in effect until they are changed by other file server commands that are inside another procedure.

Instead of typing the following,

    SEND VOL /main/users/abc/newmail:gold
        TO VOL /main/users/abc/oldmail:gold;

    SEND VOL /main/users/xyz/newmail:gold
        TO VOL /main/users/xyz/oldmail:gold;

you can type

    NET SET PRVPW = gold;
    NET SET DIR /main/users;
    SEND VOL abc/newmail, TO abc/oldmail;
    SEND VOL xyz/newmail, TO xyz/oldmail;

The file server commands in this example affect the pathnames, because the passwords and default partial pathnames are preset. Note that the opening / is left off of "abc/" and "xyz/" so that the default partial pathname is appended.

4.6 Macro Definitions

DEFINE ..AS

"Macros" can be used to eliminate the need to type a frequently used string over and over again in your command file For example, if many references are made to STN $C0, a macro can be defined at the beginning of the command file that associates a simpler or more meaningful name with a longer or less mnemonic string.

Example:

    DEFINE fserver AS STN $C0;

Then a send command might be

    SEND VOL /main/users/jose, fserver
    TO VOL /main/users/ralph;

Example:

    DEFINE fast AS 1200;

Then a MYSITE command might be

    MYSITE home USES fast;

Remember, a macro is only defined once, and it affects all instances where the substitute term is used following its definition, whether those instances are inside or outside of a procedure.

4.7 Standalone FTS Command Files

Standalone Apple FTS stations can send or receive real or virtual volumes that are Apple // DOS, PASCAL, CPM, and Apple /// SOS formatted. Real volumes are assumed to be 280 blocks

(size of a real disk) except for Apple // Pascal. which can be smaller, depending upon how many blocks are zeroed.

Standalone IBM PC FTS stations can send and receive real and virtual volumes that are PC DOS. Volumes received by IBM PC FTS stations must be of a size (160, 180, 320, 360 KB) supported by the hardware on that station.

Standalone FTS stations can only transfer individual files that are compatible with the local (standalone) operating system used. For example, IBM PC can send PC DOS files, the Apple // can send UCSD Pascal files, and the Apple /// can send Pascal and SOS files.

For the most part, command files for standalone FTS stations follow the same syntax rules and use the same keywords as do the command files for network FTS stations. There are, however, some **exceptions**:

(1) The object specification syntax is different for standalone SEND and RECEIVE command lines, because the objects being specified do not contain network pathnames. The DIR keyword is not used because standalone FTS command lines cannot contain pathnames that specify directories. The VOL and FILE keywords are used to distinguish the object as a file or an entire volume. Another type of keyword is used to tell what type of volume is being sent or received.

(2) Procedures are created in exactly the same way as they are for the network versions of FTS. But, since the Apple /// does not contain a Clock/Calendar Card, command file scheduling commands will not work. Instead, the Apple /// FTS command file procedures must be activated by an incoming call, or by the operator who hand schedules the procedure.

In this section, we describe the proper syntax for the SEND and RECEIVE command lines when used with the standalone versions of FTS. Then we provide examples of command files that accomplish various types of transfers.

The proper syntax for the SEND command line when a volume or file is being sent from a standalone FTS station is

SEND object ID idname;

The proper syntax for the RECEIVE command line when a volume or file is being received at a standalone FTS station is

RECEIVE ID idname TO object;

The proper syntax for object specification when the object is a volume is

{SOS | PASCAL | DOS | CPM | PC DOS}
VOL {#unitnumber.devicename}

NOTE: Volume names are not acceptable. Apple // object specifications require unit numbers, such as #4 or #5. Apple /// object specifications require device names, such as .d1 or .profile.

The proper syntax for object specification when the object is a file is

{SOS | PASCAL | PC DOS} FILE filename;

If the file is to be sent or received by a volume different from the prefix volume, the Pascal volume number or SOS device name must be specified.

Examples:

An Apple // FTS station initiates a call to an Apple /// station, transfers a volume, and receives a file:

MYSITE branch1 USES 1200;
SITE branch2 IS PHONE 123-4567 USES 300;

```
BEGIN branch2call;
CONNECT TO SITE branch2;
SEND CPM VOL #5 ID update;
END;
```

```
RECEIVE ID new TO PASCAL FILE #6:sales.text, REPLACE;
```

```
AT 0300 DO branch2call;
```

An Apple /// FTS station receives the call from branch1, receives ID update, and in turn, sends ID new:

```
MYSITE branch2 USES 300;
SITE branch1 USES 1200;
```

```
BEGIN branch1send;
CONNECT TO SITE branch1;
SEND PASCAL FILE /profile/sales.text
DELETE ID new;
END;
```

```
RECEIVE ID update TO CPM VOL .d2;
```

In this example, "branch 1" is sending a volume, and branch 2 is sending a file. Note the object specifications. Volumes can be SOS, DOS, PASCAL, or CPM types. Here the volume being transferred is a CPM type. Files can only be SOS or PASCAL. Here the file being sent is a PASCAL type.

The Apple // initiates the call at the time specified in its schedule command line. The Apple /// can receive the call without operator intervention. The Apple /// FTS command file has a compatible RECEIVE command line, allowing it to receive the volume being transferred to it. The Apple /// also has a procedure containing a CONNECT TO SITE branch1 command. This means that it can send its file to branch 1 when branch 1 calls.

Calls can be initiated by Apple /// FTS stations, when the command file contains the phone number of the remote FTS station and a procedure with the appropriate CONNECT TO SITE command line, and when the procedure is hand scheduled. We discuss hand scheduling of procedures in Section 4.8.

4.7.1 Rules to Remember about Standalone FTS Commands

(1) Standalone IBM PC FTS stations can only transmit IBM-compatible volumes or PC DOS files.

(2) Standalone Apple // FTS stations can only transmit Apple-compatible volumes and Apple Pascal files.

(3) Standalone Apple /// FTS stations can only transmit Apple-compatible volumes and SOS compatible files.

(4) If a volume is being sent from a network FTS station to a remote standalone FTS, the operators must agree in advance about the type of volume being sent. Although the network FTS does not require the volume type keyword, the standalone FTS does.

(5) If a network FTS is sending a volume or a file to the standalone FTS, that volume or file must not be larger than the available real disk space associated with the standalone FTS.

(6) Volumes can only be transferred between PC DOS FTS if the destination volume is the same size or larger.

(7) Standalone Apple /// FTS station operators must use the hand scheduling option if they want to initiate calls. They can, however, configure their command files such that data can be sent when remote FTS stations initiate calls to their stations. The CONNECT TO command line within the procedure that is to become active must contain the SITE name that matches that of the calling station.

(8) Just as is true with network FTS stations, care must be taken to give FTS commands that keep its standalone station running when no scheduling command exists for a procedure.

For instance, an Apple /// might only contain a series of procedures that are to be activated when various FTS stations call it. A RECEIVE command must be present. even if it is a "dummy" one. The RECEIVE command keeps FTS running, because FTS waits to RECEIVE a transmission with the appropriate ID. If no such transmission occurs, FTS will keep running.

(9) Chapter 1 of this manual states that Apple /// standalone FTS stations must be used with at least two drives. It is possible, however, to use a single-drive system to transfer or receive SOS files. Doing so is not recommended, since it requires operator intervention to swap disks during the transfer process. If you decide to try this approach, you may wish to use a two-stage boot process if the file being sent or received will physically fit on the disk that contains the Pascal system files and the FTS code and text files. Otherwise, you will need to prepare a disk with the same volume name as the Pascal boot disk and move the FTS code and text files onto it.

4.8 Hand Scheduling of Tasks

To hand schedule a task, first strike the <Esc> key to interrupt FTS. If a password is set, you will be asked to type the password before the following menu will appear:

```
C(ontinue). P(assword. Q(uit). S(chedule). R(estart)?

You can select

  C' to let FTS continue execution

  P' to change or turn off the password

  Q' to halt FTS

  S' to hand schedule a procedure

  R' to restart FTS
```

When 'S' is selected, a list of the currently internalized pro-cedures is displayed. Select one for immediate execution.

When 'P' is selected, a new console password may be entered. This password overrides any password that might be set in the pending command file.

4.9 More Sample Command Files

This section provides complete command files for possible implementations of FTS.

4.9.1 Remote Transfer between Standalone FTS Stations

The following sample command files give instructions for remote transfers between a standalone Apple // and a standalone Apple ///.

The Apple // Command File:

MYSITE brooklyn USES NOVATION + 1200;
SITE omaha IS PHONE (111) 123-4567 USES 300;

RECEIVE ID expense TO PASCAL VOL #5;

BEGIN callomaha NOLIST;
CONNECT TO SITE omaha;
SEND PASCAL FILE #5:report.text ID june;
END;

AT 0500 DO callomaha
RETRY IN 1 HOUR FOR 2 TIMES;

The Apple /// Command File:

MYSITE omaha USES 300;
SITE brooklyn;

RECEIVE ID june TO PASCAL FILE .d2/brook.text, REPLACE;

BEGIN answerbrook;
CONNECT TO SITE brooklyn;
SEND PASCAL VOL .d2 ID expense;
END;

4.9.2 Local Network Transfers and Remote Network to Remote Network Transfers

In the following example, FTS is used to enhance the Messenger electronic mail package by performing local and remote transfers. Users newmail volumes are routed from one local file server to another and between remote locations.

Notice that explanatory comments are enclosed in (*   *). These comments are ignored by FTS but make the command file easier for readers to understand.

MYSITE nestar;

SITE nyro;
(* NY regional office; NEW YORK *)
SITE ops IS PHONE 493-8031;
(* Nestar's Operation; building 2 *)

(* Macro definitions for connected networks *)

DEFINE bach AS slot 6;
DEFINE beethoven AS slot 4;
DEFINE bartok AS slot 2;

(* Issue file server requests to set default *)
(* directories and passwords *)

NET bach set dir /main/users;
NET beethoven set dir /main/users;
NET bartok set dir /main/users;

NOLIST;
NET bach set prvpw = secret;
NET beethoven set prvpw = secret;
NET bartok set prvpw = secret;
LIST;

(* Receive statements for incoming mail *)
(* addressed to personal ids *)

RECEIVE ID hjsmail, TO DIR hjs/newmail, beethoven;
RECEIVE ID ljsmail, TO DIR ljs/newmail, bach;
RECEIVE ID plhmail, TO DIR plh/newmail, beethoven;
RECEIVE ID clrmail, TO DIR clr/newmail, bartok;

(* Reroute files locally between connected *)
(* networks *)

BEGIN localstuff NOLOG;
  SEND DIR hjs, bach DELETE
  TO DIR hjs, beethoven;
  SEND DIR hjs, bartok DELETE
  TO DIR hjs, beethoven;
  SEND DIR plh, bartok DELETE
  TO DIR plh, beethoven;
  SEND DIR plh, bach DELETE
  TO DIR plh, beethoven;
  SEND DIR ljs, beethoven DELETE
  TO DIR ljs, bach;
  SEND DIR ljs, bartok DELETE
  TO DIR ljs, bach;

  (* Gather files for operation personnel *)
  (* under ops directory on bartok for   *)
  (* later forwarding by phone to site   *)

```
(* ops. *)

   SEND DIR clr, bach DELETE
   TO DIR ops/clr, bartok;
   SEND DIR clr, beethoven DELETE
   TO DIR ops/clr, bartok;
   SEND DIR clr, bartok DELETE
   TO DIR ops/clr, bartok:
   .
   .  (* and so on *)
   .
   SEND DIR geb, bach DELETE
   TO DIR ops/geb, bartok;
   SEND DIR geb, beethoven DELETE
   TO DIR ops/geb, bartok;
   SEND DIR geb, bartok DELETE
   TO DIR ops/geb, bartok;
END;


(*  Communicate with NY regional office. Since  *)
(*  we did not define a phone number for site   *)
(*  nyro, we will rely on them to initiate the  *)
(*  connection. Individual mail messages are    *)
(*  received under users' directory on bach for *)
(*  later distribution, and other volumes are   *)
(*  received under a predesignated directory.   *)
(*  Outgoing mail and volumes are directed to   *)
(*  similar ids at site nyro. For example, to   *)
(*  send mail to Joe in NY via the Messenger,   *)
(*  one would enter 'NYRO/JOE' as the receiver  *)
(*  ID, and FTS will forward it to NY's FTS     *)
(*  which will create the new mail volume       *)
(*  under /main/users/joe/newmail/... for       *)
(*  interpretation by Messenger in NY.          *)

RECEIVE ID nyromail
TO DIR /main/users, bach;
RECEIVE ID nyrovols
TO DIR /main/incoming/nyro, bach;

BEGIN nyrostuff;
   CONNECT TO SITE nyro;
   SEND DIR nyro, beethoven
```

```
            DELETE ID nestarmail;
            SEND DIR nyro, bartok
            DELETE ID nestarmail;
            SEND DIR nyro, bach
            DELETE ID nestarmail;
            SEND DIR /main/outgoing/nyro, beethoven
            DELETE ID nestarvols;
            SEND DIR /main/outgoing/nyro, bartok
            DELETE ID nestarvols;
            SEND DIR /main/outgoing/nyro, bach
            DELETE ID nestarvols;
         END;


      (* Distribute group mail to individuals *)

      BEGIN broadcast NOLOG;
         SEND DIR staff/newmail, bach
         DELETE TO DIR staff/newmail, bartok;
         SEND DIR staff/newmail, beethoven
         DELETE TO DIR staff/newmail, bartok;
         SEND DIR staff/newmail, bartok
         DELETE TO DIR rnd/newmail, bach
               TO DIR mktg/newmail, beethoven
               TO DIR ops/newmail, bartok
               TO DIR hjs/newmail, beethoven;

         SEND DIR ops/newmail, bach
         DELETE TO DIR ops/newmail, bartok;
         SEND DIR ops/newmail, beethoven
         DELETE TO DIR ops/newmail, bartok;

         SEND DIR rnd/newmail, bartok
         DELETE TO DIR rnd/newmail, bach;
         SEND DIR rnd/newmail, beethoven
         DELETE TO DIR rnd/newmail, bach;
         SEND DIR rnd/newmail, bach
         DELETE TO DIR ljs/newmail, bach
               TO DIR jad/newmail, bach

            .
            .  (* and so on *)
```

TO DIR jhm/newmail, bach;

END;

(* Communicate with Operations department at *)
(* site ops. We 'always' call ops even with *)
(* nothing to send, just in case they have   *)
(* something to send to us. Outgoing ops   *)
(* mail was gathered (by localstuff) on   *)
(* bartok.   *)

RECEIVE ID opsmail TO DIR /main/users, bach;

BEGIN opsstuff;
   CONNECT TO SITE ops, ALWAYS;
   SEND DIR ops, bartok DELETE ID nestarmail;
END;

(* Schedule periodic and daily procedures   *)

EVERY 90 MINUTES DO localstuff;

EVERY 3 HOURS DO broadcast;

AT 0800,1200,1500,1800 DO opsstuff
RETRY IN 10 MINUTES FOR 3 TIMES;

Appendix A

Reference Guide

A.1 Keywords

In the following list of FTS keywords, ** follows each keyword that can only be placed within a procedure. * follows each word that can only be placed outside of a procedure. All other keywords can appear either inside or outside a procedure. Procedures are defined in A.4.

ALWAYS**	FOR ...TIMES*	REPLACE
AT*	HOUR(S)*	RETRY IN*
BEGIN**	ID	SEND
CONNECT TO SITE**	IS PHONE*	SET CHAIN**
DEFINE ... AS*	LIST	SITE*
DELETE	MINUTE(S)*	SLOT
DIR	MYSITE*	STN
DO*	NET	TO
END**	NOLIST	USES*
EVERY*	NOLOG**	VOL
EXIT**	PASSWORD*	
FILE	RECEIVE*	

A.2 Syntax of FTS Command Lines Understood by FTS

• All command lines must end with a semicolon.

• Command lines can be entered on multiple screen lines.

• Pathnames must be terminated with a comma, a <Return>, or a semicolon.

• Blank lines in command files are ignored.

A-1

- Uppercase and lowercase may be used interchangeably.

- Enclose comments in (* comments *) and place them on separate lines.

- Blanks or commas can be used to delimit multiple values in command lines.

Below, command lines are listed alphabetically according to the keyword at the beginning. The syntax for specification of objects is provided in A.3.1 and A.3.2 below.

(1)   AT hhmm DO taskname [RETRY IN (see below)];

    RETRY IN nn HOUR(S) [FOR nn TIMES];
    RETRY IN nn MINUTE(S) [FOR nn TIMES];

The AT command line can contain multiple times and multiple tasks:

    AT 0900, 1300, 1650 DO task1, task2, task3;

If multiple tasks are specified, FTS will do them in the reverse order that they appear in the command file.

(2)   BEGIN taskname [NOLOG] [EXIT];

(3)   CONNECT TO SITE sitename [ALWAYS];

(4)   DEFINE <macroname> AS <macrobody>;

(5)   END;

(6)   EVERY n {HOUR(S)|MINUTE(S)} DO taskname
        [RETRY clause (see below)];

    RETRY IN nn HOUR(S) FOR nn TIME(S);
    RETRY IN nn MINUTE(S) FOR nn TIME(S);

The EVERY command line can have multiple tasknames:

EVERY 6 HOURS DO task1, task2, task3;

(7)   LIST;

LIST can be used as a separate command line inside or outside of a procedure.

(8)   MYSITE sitename [USES <uses string>];

Possible USES strings:

300 (sets 300 baud)

1200 (sets 1200 baud)

NATIONAL (sets 40ms delay between Rts
        and start of data)

INTERNATIONAL (sets 240ms delay between
        Rts and start of data)

NOVATION (sets 1000ms delay between Rts
        and start of data)

PULSE (sets pulse dialing)

TONE (sets tone dialing)

If more than one USES statements are needed, specify as follows:

USES TONE+NATIONAL;

To find possible USES strings for your modem, see the appropriate appendix.

(9) NOLIST;

NOLIST can be used as a separate command line inside or outside of a procedure.

(10) NET [SLOT n] [STN $nn] file server command;

(11) PASSWORD password;

RECEIVE ID idname TO object [REPLACE];

(12) SEND object [DELETE] TO object [REPLACE] [TO object [REPLACE]]...;

Local send command lines can contain multiple destination objects.

(13) SEND object [DELETE] ID idname;

(14) SET CHAIN programname [(optional FTS cmd file name)];

(15) SITE sitename [IS PHONE number] [USES <use string>];

Phone numbers can be entered in the following ways:

123-456-7891
(123) 456-7891
123 456 7891

Either spaces, hyphens, or parentheses can delimit the parts of the phone number. A period can be entered before any number to cause a 1-second pause. This is useful when calls are being placed through a PBX and 9 must be dialed to reach a dial tone.

9. 123 456 7891

(See MYSITE for USES string variations.)

A.3 Object Specification

A.3.1 Object Specification in Network FTS Command Lines

A local SEND command line must contain source and destination object specifications.

A remote SEND command line must contain a source object specification.

A RECEIVE command line (only used for remote transfers) must contain a destination object specification.

The syntax for specifying an object is:

{VOL | DIR} pathname, [SLOT n] [STN $nn]
[FILE filename]

A.3.2 Object Specification in Standalone FTS Command Lines

If the object is a volume:

{SOS | PASCAL | DOS | CPM@| PC DOS}
VOL {unitnumber | .devicename}

If the object is a file:

{SOS | PASCAL | PC DOS} FILE filename

Note that "filename" can be preceded by a Pascal unit number, a SOS device name, PC DOS drive specifier and/or pathname if different from the default.

A.4 Syntax of Procedures

A.4.1 Syntax of a Local Procedure

```
BEGIN taskname [NOLOG] [EXIT];
[LIST:]
[NOLIST;]
[NET file server command;]
SEND object [DELETE] TO object [REPLACE]
[TO object [REPLACE]]...;

[SET CHAIN programname [(FTS cmd filename)]];
END;
```

Local procedures can contain multiple destination objects.

A.4.2 Syntax of a Remote Procedure

```
BEGIN taskname [NOLOG][EXIT];
CONNECT TO SITE sitename [ALWAYS];
[LIST;]
[NOLIST;]
[NET file server command;]
SEND object [DELETE] ID idname;
[SET CHAIN programname
[(ftscommand or ftscmd filename)]];
END;
```

A.5 Required and Optional Command File Components

Required and Optional Components of a Local Transfer Command File:

● one or more DEFINE command lines outside of procedures. (Optional.)

● one PASSWORD command line outside of a procedure. (Optional.)

- one or more file server command lines, either inside or out-side of procedures. (Optional.)

- LIST and NOLIST commands, either inside or outside of pro-cedures. (Optional.)

- one or more global SEND command lines or one or more pro-cedures that contain SEND command lines. (Required.)

If there is a procedure that is to be executed automatically, a schedule command must be present.

If there are no scheduling or RECEIVE command lines, FTS will complete globals and abort. If it is to continue running so that procedures can be hand scheduled, the command file must con-tain a "dummy" RECEIVE command line.

Required and Optional Components of a Remote Transfer Command File:

- one or more DEFINE command lines outside of the pro-cedures. (Optional.)

- one password command line outside of a procedure. (Optional.)

- file server commands, either inside or outside of procedures. (Optional.)

- LIST and NOLIST commands, either inside or outside of pro-cedures. (Optional.)

- a MYSITE command line. (Required.) Include USES and approprite string if necessary.

- a SITE command line for every SITE to be communicated with. (Required.) Include PHONE IS if FTS is to initiate the

call to the named site. Include USES and appropriate string if necessary.

- a global SEND command line, a RECEIVE command line, or a procedure (any number of each of these). (Optional.) If procedures are present, they require scheduling command unless FTS is to perform them only when it receives a call, or only when hand scheduled. If no schedule command exists for the procedures, a RECEIVE command line must be present to keep FTS running.

Appendix B

The Clock/Calendar Card

B.1 Clock/Calendar Specifications

The real-time Clock/Calendar Card is included in the File Transfer Server package for the Standalone Apple //. This card gives the File Transfer Station the ability to maintain the current date and time, so that it can carry out events as you have scheduled them. In addition, entries into the log file are timestamped.

The Clock/Calendar Card consists of hardware and software components. The hardware is an Apple peripheral card manufactured by Nestar, with the following attributes:

● Supplies year, month, date-of-month, day-of-week, and time in 24-hour clock notation.

● Resolution to 1 second.

● Accuracy is crystal controlled to better than +/- 0.005%.

● On-card rechargeable Ni-Cad battery backup maintains time and date for at least 4 weeks without external power.

● Write-enable and battery-enable jumpers.

The software consists of a utility program, SETCLOCK.CODE, to set the current time and date (see following section).

B.2 The SETCLOCK Utility Program

SETCLOCK is a utility program that is used to set the date and time in the Clock/Calendar Card. Use it as follows:

(1) Make sure that the WE (write enable) and BAT (battery enable) jumpers (small blue plugs) are in place on the Clock/Calendar Card. The BAT jumper is normally disconnected for storage and shipment to avoid discharging the Ni-Cad battery.

(2) With the Apple powered off, insert the Clock/Calendar Card in slot 5. Insert the other cards as necessary for the File Tranfer Server.

(3) Boot with any bootable Pascal disk (e.g., "Apple 1") in drive 4. Insert your FTS disk in drive 5.

(4) eX(ecute #5:SETCLOCK to execute the setclock utility.

(5) The program will display

THE CURRENT DATE AND TIME IS:

MON 17-DEC-80 02:40:16

DO YOU WANT TO CHANGE THE TIME OR DATE?

Respond 'Y' to proceed, and answer the questions as in the following example:

DAY OF THE WEEK (1ST 3 LETTERS)? TUE
DAY OF THE MONTH (1-31)? 7_
MONTH (1ST 3 LETTERS)? FEB
YEAR? 1981
HOUR (00-23)? 18
ENTER THE MINUTE AND HIT RETURN
WHEN IT IS EXACTLY THAT TIME.
MINUTE? 44

The clock/calendar will then be set, and it will return to step 5. For the date and time set in the above example, it would display:

THE CURRENT DATE AND TIME IS:

TUE 7-FEB-81 18:44:00

DO YOU WANT TO CHANGE THE TIME OR DATE?

Respond 'N' to exit the program.

(6) You may remove the WE (write-enable) jumper if you wish to prevent accidental reseting of the date and time.

The Clock/Calendar Card will continue to maintain the correct time for up to four weeks when the Apple is turned off. The battery will be trickle-charged whenever the Apple is on. The Clock/Calendar Card may be removed from the Apple (when power is off!) and the time will still be updated, but care should be taken not to short or touch any pins or contacts to avoid changing the rate of the battery-powered oscillator.

Appendix C

The Owlmodem

The Owlmodem is a Bell 202 compatible modem developed by Owl Micro-Communications Ltd. for use with the Apple // computer. Owlmodem has auto dial and auto answer.

C.1 Installing the Owlmodem

Follow the installation instructions in the Owlmodem owner's manual. An exception to those instructions: You must insert the modem circuit board in slot 2 of the Apple.

C.2 "USES" Options

The following optional keywords can be included in the <USES string> of the SITE or MYSITE command:

NATIONAL	-- sets CTS delay at 40 ms
INTERNATIONAL	-- sets CTS delay at 240 ms
	(default)

CTS delay is the time required to change between transmitting and receiving modes under half duplex.

For example,

    SITE there IS PHONE 893-9999
    USES NATIONAL;

Appendix D

Novation APPLE-CAT II Modem

The Novation APPLE-CAT II modem is a multi-function communications interface designed specifically for the Apple // computer. The modem is compatible with both Bell 103 and Bell 202 series standards. By default, the modem is set to Bell 202 mode (0-1200 baud, half duplex). The modem may be set to operate at Bell 103 mode (0-300 baud, full duplex) if FTS is given the necessary instructions.

D.1 Installing the Novation APPLE-CAT II Modem

Follow the installation instructions in the Novation manual. There is an exception to those instructions; you must insert the modem circuit board in slot 2 of the Apple.

D.2 "USES" Options

The following option keywords can be included in the <USES string> of the SITE or MYSITE command to tell FTS your intended use of the modem:

300	-- to select 300 baud Bell 103 mode
1200	-- to select 1200 baud Bell 202 mode (default)
PULSEDIAL	-- use pulse dialing (default)
TONEDIAL	-- use touch tone dialing (only if the optional Touch Tone Receiver chip is installed on the modem)

Additional options if operating under Bell 202 mode:

       NOVATION   -- sets CTS delay at 1 second
       NATIONAL   -- sets CTS delay at 40 ms
       INTERNATIONAL-- sets CTS delay at 240 ms
                      (default)

CTS delay is the time required to change between transmitting and receiving modes under half duplex.

For example,

       MYSITE HERE USES 300 + NOVATION;
       SITE THERE IS PHONE 999-9999
       USES 300 + TONEDIAL + NOVATION;

Appendix E

Hayes Micromodem II

The Hayes Micromodem II is a Bell 103 compatible communication system that can be used for the Apple // computer. It "operates" in originate or "answer" mode, and has pulse dialing and auto answering capabilities.

E.1 Installing the Hayes Micromodem II

Follow the instructions in the Micromodem owner's manual to install the modem hardware for use with FTS. You can insert the modem circuit board in any suggested slot

E.2 "USES" Options

Since all modem operations are automatically controlled by FTS, no USES options are supported. (A baud rate of 300 is the only possibility.)

Appendix F

The Hayes Smartmodem
on an Apple

The Hayes Stack Smartmodem is an RS-232C compatible communication interface that can be used to connect an Apple ///
computer to the commercial phone system. The Smartmodem is
Bell 103 compatible, and operates with a data rate of 0-300
baud. The Smartmodem has built-in auto dialing (touch tone or
pulse) and auto answering facilities. It also accepts and executes commands issued under program control. In order for FTS
to work with the Smartmodem, follow the guidelines in this
appendix.

F.1 Installing the Hayes Smartmodem

(1) Prepare your D.C. Hayes Smartmodem for use with the File
     Transfer Server: Open the front of the Smartmodem (see
     the Smartmodem owner's manual). Inside you will find the
     configuration switches. Set these switches as follows; then
     shut the modem:

```
switch # 1     2     3     4     5     6     7     8
setting              up                up    up
          down  down       down  down             down
```

(2) Use the RS-232C cable supplied by Nestar to connect the
     Smartmodem to your Apple. Be sure to insert the connector
     labeled "MODEM" into the modem, and the connector
     labeled "APPLE" into Port C of your Apple. Port C is
     located on the back of the Apple ///, on the side opposite
     the power switch. If you are using your own RS-232C
     cable, you must wire the cable so that the following pin connectors are established:

```
APPLE      pins              Smartmodem pins
DB-25P Connector             DB-25P Connector
   2    -------------------    2
   3    -------------------    3
   4    -------------------    4
   5    -------------------    5
   8    -----                  8 (not connected)
   6    -------------------    6
   7    -------------------    7
  20    -------------------   20
```

(3) Plug the Smartmodem into a telephone jack, using the cable supplied by D.C.Hayes.

(4) Plug the Smartmodem into a 110-volt power socket, using the cable supplied by D.C.Hayes. Turn the modem's power on, using the small metal switch on the back.

F.2 Configuring the RS232 Driver

Note that Nestar ships a SOS.DRIVER file that is set up exactly for use with Smartmodem. If you are building the SOS.DRIVER file using the RS232 driver as it is provided from Apple, you will need to modify some of the driver parameters using the System Configuration Program as follows:

(1) Back up your SOS.DRIVER file with a copy.

(2) Select the option "Read a Driver File" to read in your SOS.DRIVER.

(3) If the RS232 device driver already exists, go to step 5.

(4) Add the RS232 device driver to the current configuration by reading it with the Read option.

(5) Select the option "Edit Driver Parameter" to change the RS232 driver's parameter.

(6) Select the Configuration Block option. Set the first value to 06 and the second value to 00. This sets the baud rate at 300 and the data format at 8 bits with no parity.

The configuration block with other default values should appear as follows:

Box#   0   1   2   3   4   5   6   7   8   9   A   B

Value 06 00 00 00 00 00 13 11 DF 84 50 00

(7) Return to the main menu and select the "Generate New System" option to save the new system configuration as the new SOS.DRIVER file.

F.3 "USES" Options

Use only the following options in the <USES string> of the SITE command or the MYSITE command:

TONE -- for touch tone dialing
PULSE -- for pulse dialing (default)

For example,

SITE headquarters IS PHONE 123-4567 USES TONE;

Appendix G

The Hayes Smartmodem 1200
on an Apple

The Hayes Stack Smartmodem 1200 is an RS-232C compatible communication interface that can be used to connect an Apple /// computer to the commercial phone system. The Smartmodem 1200 is Bell 103 or 212A compatible, and operates with a data rate of 0-300 or 1200 baud. The Smartmodem 1200 has built-in auto dialing (touch tone or pulse) and auto answering facilities. It also accepts and executes commands issued under program control. In order for FTS to work with the Smartmodem 1200, follow the guidelines in this appendix.

G.1 Installing the Hayes Smartmodem 1200

(1) Prepare your D.C. Hayes Smartmodem 1200 for use with the File Transfer Server: Open the front of the Smartmodem 1200 (see the Smartmodem 1200 owner's manual). Inside you will find the configuration switches. Set these switches as follows, then shut the modem:

```
switch # 1     2      3    4     5      6     7    8
setting              up                 up    up
         down  down       down  down             down
```

(2) Use the RS-232C cable supplied by Nestar to connect the Smartmodem 1200 to your Apple. Be sure to insert the connector labeled "MODEM" into the modem, and the connector labeled "APPLE" into Port C of your Apple. Port C is located on the back of the Apple ///, on the side opposite the power switch. If you are using your own RS-232C cable, you must wire the cable so that the following pin connectors are established:

```
APPLE /// pins              Smartmodem pins
DB-25P Connector            DB-25P Connector
    2  -------------------- 2
    3  -------------------- 3
    4  -------------------- 4
    5  -------------------- 5
    8  -----               8 (not connected)
    6  -------------------- 6
    7  -------------------- 7
   20  -------------------- 20
```

(3) Plug the Smartmodem 1200 into a telephone jack, using the cable supplied by D.C. Hayes.

(4) Plug the Smartmodem 1200 into a 110-volt power socket, using the cable supplied by D.C. Hayes. Turn the modem's power on, using the small metal switch on the back.

G.2 Configuring the RS232 Driver

Note that Nestar ships a SOS.DRIVER file that is set up exactly for use with Smartmodem 1200. If you are building the SOS.DRIVER file using the RS232 driver as it is provided from Apple, you will need to modify some of the driver parameters using the System Configuration Program as follows:

(1) Back up your SOS.DRIVER file with a copy.

(2) Select the option "Read a Driver File" to read in your SOS.DRIVER

(3) If the RS232 device driver already exists, go to step 5.

(4) Add the RS232 device driver to the current configuration by reading it with the Read option.

(5) Select the option "Edit Driver Parameter" to change the RS232 driver's parameter.

(6) Select the Configuration Block option. Set the first value to 08 and the second value to 00. This sets the baud rate at 1200 and the data format at 8 bits with no parity.

The configuration block with other default values should appear as follows:

Box#	0	1	2	3	4	5	6	7	8	9	A	B
Value	08	00	00	00	00	00	13	11	DF	84	50	00

(7) Return to the main menu and select the "Generate New System" option to save the new system configuration as the new SOS.DRIVER file.

G.3 "USES" Options

Use only the following options in the <USES string> of the SITE command or the MYSITE command:

TONE-- for touch tone dialing
PULSE-- for pulse dialing (default)
300-- to select 300 baud Bell 103 mode
1200-- to select 1200 baud Bell 212A mode

For example,

    SITE headquarters IS PHONE 123-4567 USES TONE;
    MYSITE branch USES 1200;

Appendix H

The Hayes Smartmodem
on an IBM PC

The Hayes Stack Smartmodem is an RS-232C compatible communication interface that can be used to connect an IBM PC computer to the commercial phone system. The Smartmodem is Bell 103 compatible, and operates with a data rate of 0-300 baud. The Smartmodem has built-in auto dialing (touch tone or pulse) and auto answering facilities. It also accepts and executes commands issued under program control. In order for FTS to work with the Smartmodem, follow the guidelines in this appendix.

H.1 Installing the Hayes Smartmodem

(1) Prepare your D.C. Hayes Smartmodem for use with the File Transfer Server: Open the front of the Smartmodem (see the Smartmodem owner's manual). Inside you will find the configuration switches. Modem switch settings are unimportant, except for switch 6, which must be up.

(2) Use the RS-232C cable supplied by Nestar to connect the Smartmodem to your IBM PC. Be sure to insert the connector labeled "MODEM" into the modem, and the connector labeled "IBM PC" into the DB-25 connector attached to the serial interface on the back of the IBM PC, on the side opposite the power switch. If you are using your own RS-232C cable, you must wire the cable so that the following pin connectors are established:

```
IBM PC pins                  Smartmodem pins
DB-25P Connector             DB-25P Connector
    2    ----------------------    2
    3    ----------------------    3
    4    ----------------------    4
    5    ----------------------    5
    8    ----------------------    8
    6    ----------------------    6
    7    ----------------------    7
   20    ----------------------   20
```

(3) Plug the Smartmodem into a telephone jack, using the cable supplied by D.C.Hayes.

(4) Plug the Smartmodem into a 110-volt power socket, using the cable supplied by D.C.Hayes. Turn the modem's power on, using the small metal switch on the back.

H.2 "USES" Options

Use only the following options in the <USES string> of the SITE command or the MYSITE command:

TONE -- for touch tone dialing
PULSE -- for pulse dialing (default)

For example,

SITE headquarters IS PHONE 123-4567 USES TONE;

Appendix I

The Hayes Smartmodem 1200
on an IBM PC

The Hayes Stack Smartmodem 1200 is an RS-232C compatible communication interface that can be used to connect an IBM PC computer to the commercial phone system. The Smartmodem 1200 is Bell 103 or 212A compatible and operates with a data rate of 0-300 or 1200 baud. The Smartmodem 1200 has built-in auto dialing (touch tone or pulse) and auto answering facilities. It also accepts and executes commands issued under program control. In order for FTS to work with the Smartmodem 1200, follow the guidelines in this appendix

I.1 Installing the Hayes Smartmodem 1200

(1) Prepare your D.C. Hayes Smartmodem 1200 for use with the File Transfer Server. Open the front of the Smartmodem 1200 (see the Smartmodem 1200 owner's manual). Inside you will find the configuration switches. Switches 1 through 5 and switch 7 are unimportant. Switch 6 must be up. Switch 8 must be down.

(2) Use the RS-232C cable supplied by Nestar to connect the Smartmodem 1200 to your IBM PC as the COM1: device. Be sure to insert the connector labeled "MODEM" into the modem, and the connector labeled "IBM PC" into the DB-25 connector attached to the serial interface on the back of the IBM PC on the side opposite the power switch. If you are using your own RS-232C cable, you must wire the cable so that the following pin connectors are established:

```
COM 1 Device
IBM PC pins            Smartmodem 1200 pins
DB-25P Connector      DB-25P Connector
      2    - - - - - - - - - - - - - - - -2
      3    - - - - - - - - - - - - - - - -3
      4    - - - - - - - - - - - - - - - -4
      5    - - - - - - - - - - - - - - - -5
      8    - - - - - - - - - - - - - - - 8
      6    - - - - - - - - - - - - - - - -6
      7    - - - - - - - - - - - - - - - -7
     20    - - - - - - - - - - - - - - -20
```

(3) Plug the Smartmodem 1200 into a telephone jack, using the cable supplied by D.C. Hayes.

(4) Plug the Smartmodem 1200 into a 110-volt power socket, using the cable supplied by D.C. Hayes. Turn the modem's power on, using the small metal switch on the back.

I.2 "USES" Options

(1) Use only the following options in the <USES string> of the SITE command or the MYSITE command:

> TONE -- for touch tone dialing
> PULSE -- for pulse dialing (default)
> 300   -- to select 300 baud Bell 103 mode
> 1200 -- to select 1200 baud Bell 212A mode

For example,

> SITE headquarters IS PHONE 123-4567 USES TONE;
> MYSITE branch USES 1200;

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